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cruisers, and relatively weak in aircraft carriers. It was to consist of 17 battleships, 12 carriers, 6 large or battle cruisers, 8 heavy cruisers, 40 light cruisers, 171 destroyers, and 82 submarines. The following planned completion dates underscored the pre-eminent position of battleships as against carriers:

	Battleships	Carriers		Battleships	Carriers
1941	2	0	1944	3	4
1942	1	1	1945	5	3
1943	4	0	1946	2	4

The 1940 Naval program had one other striking characteristic. The program concentrated heavily upon large combatant ships. Relatively little emphasis was placed upon small escort and anti-submarine vessels. Obviously, the history of the 1917-18 submarine warfare had either been forgotten or disregarded. ^{4/}

Once established, the two-ocean Navy program remained largely unchanged in quantity until Pearl Harbor. However, as the course of the war in Europe and events in Asia became increasingly ominous for the United States, accelerations of scheduled deliveries were made. In December 1940, by authorization of the President, the goal for destroyers was changed from 101 to 149 by the end of 1943. ^{5/} This acceleration was undoubtedly prompted in part by our transfer of 50 overage destroyers to Great Britain in return for bases in the near Atlantic. A second advance in schedules was made in August 1941, at which time 116,000 tons were added to the scheduled deliveries for 1942. ^{6/}

The two-ocean Navy program launched in the spring and summer of 1940 involved more than just the construction of ships. Because of the size of the program, new shipyards had to be built, and new ways constructed. Thus, the December 1940 acceleration of destroyers had to be preceded by the laying out of six new shipyards. ^{7/} Moreover, great expansion of facilities for the production of critical components had to be made before completion of the program was assured. Up until December 31, 1941, the total funds appropriated for Naval ships amounted to \$9,605,000,000. Of that amount, only about 50 percent was allocated for actual construction. The rest of the sum was needed for facilities, armor, armament, and equipment. ^{8/}

^{4/} Shipbuilding Division, WPB, "United States Naval Shipbuilding Program, Combatant Vessels", August 1, 1941; WPB, "Defense Progress" No. 9, October 4, 1940.

^{5/} Letter, W. S. Knudsen to Rear Admiral S. M. Robinson, December 2, 1940.

^{6/} WPB, "Defense Progress", No. 55, September 12, 1941.

^{7/} Letter, W. S. Knudsen to Rear Admiral S. M. Robinson, December 2, 1940.

^{8/} NDAC Press Release 293, December 6, 1940; WPB, "Financial Analysis War Program, United States", February 10, 1941 (WPB Document 17).

Merchant Shipbuilding Program, July 1940 to December 1941. -- When the war started in September 1939, the United States had the second largest merchant fleet in the world. The United States merchant fleet at that time amounted to about 1,150 ocean-going vessels of 3,000 dead-weight tons or over in size, aggregating approximately 10,500,000 dead-weight tons. Even so, this fleet was entirely inadequate to carry essential seaborne commerce of this country. In 1940 a total of 26,000,000 long tons of dry cargo was imported into the United States, of which only 9,300,000 tons or 36.8 percent was carried by American flagships. In 1941 it was estimated that if the United States fleet were forced to carry by itself all the critical war and other essential materials needed by this country there would be an estimated annual shortage of 3,400,000 to 5,700,000 tons of shipping. 9/

There was also one other great deficiency in the United States merchant fleet as it existed in September 1939. That was in the character of the individual ships making up the fleet. Most of them had been built during or immediately after the World War. Consequently the ships were, for a large part, overage, slow, and unsuited for many purposes required by modern warfare.

Some concrete steps had been taken before the outbreak of the war to improve the condition of the United States merchant marine. With the passage of the Merchant Marine act of 1936, a ten year program of construction had been started. This program called for the building of about 50 high-speed standard merchant ships a year so that over a ten year period most of the obsolete vessels would have been replaced. But deliveries under this program had scarcely gotten started when the war broke out and the need for far greater completions of merchant shipping was apparent.

From September 1939 through November 1941 the size of the United States merchant fleet was actually shrinking. This was due to our sale or transfer of ships to Great Britain and Panama to aid the British and to circumvent the law barring the use of United States flagships in belligerent waters. By June 1941, one estimate placed the size of the merchant fleet under the United States flag at 6,900,000 tons. 10/ In July 1940, however, a greatly increased program for the construction of standard merchant ships was scheduled. This program called for the construction of 10,000,000 tons of standard cargo shipping by early in 1944. But as the course of the war increasingly threatened the security of the United States, even this program appeared to be greatly inadequate

9/ WFB, "Defense Progress" No. 42, May 31, 1941.

10/ WFB, "Defense Progress" No. 49, July 25, 1941.

to the assumed future needs. The hard fact was that enemy submarines were sinking ships faster than the United States and Great Britain could build ships during 1940 and 1941. From the start of the war until the middle of 1941 submarine sinkings had averaged about 425,000 tons a month. American production of ocean-going ships reached 100,000 tons a month in July 1941 and the peak production of 450,000 tons a month was not scheduled under the new ship program until a year later. ^{11/} Obviously what was needed was a ship which could be mass-produced in the shortest possible time, and the construction of which would not interfere with the great naval construction program then under way. The standard cargo ship then being constructed did not fit that bill of particulars. It was expensive to construct in both man-hours and materials, and its main propulsive engines were of the type needed by the naval program. *

In December of 1941 the Maritime Commission recommended to the President that the so-called "Ugly Duckling" be mass-produced to answer the need for a greatly increased ship production in the shortest possible time. The design for the "Ugly Duckling", since called the Liberty ship, was adapted from a British tramp-steamer type. The new Liberty ship was of 8,600 or more cargo deadweight tons and had a speed of 11 knots. It was powered by a reciprocating engine, the procurement of which would not encroach on the turbine and diesel requirements for combat craft. From the start it was understood that there were to be few changes made on the Liberty ship, to facilitate the use of assembly-line methods and the extensive prefabrication of parts. One other innovation in the construction of the ship is noteworthy. It was to be largely electrically welded instead of riveted. ^{12/}

With the design for the new emergency ship approved, plans for its construction were rapidly made. In December 1940 the President allocated to the Maritime Commission \$36,000,000 to start preliminary work on a new shipbuilding program. On February 6, 1941, Congress, by Joint Resolution, authorized the construction of the new emergency type. ^{13/} Thereafter, additional increases were made to the emergency ship program in April, July, October, and December. In the summer of 1941 this country was producing about 100,000 tons of merchant shipping a month. By the December 1941 schedule, the construction of over 500,000 tons a month was planned for 1942. ^{14/}

^{11/} WPB, "Defense Progress" No. 49, July 25, 1941.

^{12/} Memorandum, Rear Admiral E. S. Land to the President, December (?), 1940; Letter, W. S. Knudsen to the President, November 19, 1940; United States Senate, 78th Cong., 2nd Sess., Special Committee Investigating the National Defense Program, Report No. 10, Pt. 18, June 23, 1944.

^{13/} Memorandum, Harold D. Smith to William S. Knudsen, December 31, 1940; The President to Rear Admiral E. S. Land, April 14, 1941.

^{14/} Planning Committee, WPB, "Report on Maritime Shipbuilding Program", July 20, 1943 (Planning Committee Document 133).

Facilities, Components, and Materials.--Before a good start could be made on either the Naval or Maritime construction programs the shipyards and the new ways needed to build the ships had to be planned and constructed. Since the increased Naval program had been planned and under way many months before 1941, the problem of ways did not seriously interfere with the construction of the larger combatant ships. But from its start, the Maritime program was limited by the number of ways available. In 1936 there were only 10 shipyards and 46 ways in this country capable of producing ocean-going vessels of 400 feet or longer. A handful of new ways had been constructed between that time and 1940. But in 1941, seven new shipyards with 50 new ways had to be constructed before the delivery of 200 new merchant ships could be assured during the next two years. Every increase to the merchant ship program after that date meant additional shipyards and new ways. When the peak Maritime Program of 20,000,000 tons had been worked out for 1943 it was to require the utilization of 81 shipyards and over 300 ways. 15/

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Throughout the entire period previous to Pearl Harbor, the Maritime Commission encountered especial difficulties in obtaining the materials and components needed for the enlarged merchant ship program. This was not only because of the greatly increased Maritime need for these items but also because of the severe competition afforded by the Navy for many of these same items and the facilities making them. And in the competition between the Navy and the Maritime Commission the odds were all with the Navy. For one thing, the expanded Navy program had started much earlier than the merchant ship program and thus the Navy got the jump on the Maritime Commission as far as selection of facilities were concerned. For a second thing, combatant ships seemed more closely connected with the defense effort than merchant ships, and manufacturers tended to react more favorably to the appeals of the Navy. Seemingly, only in priorities did the Maritime Commission fare as well as the Navy Department. But this happy state of affairs lasted only until November 7, 1941. When the Maritime Commission contacted manufacturing companies with proposals to build reciprocating engines the Commission was told in practically all cases that any promises to the Maritime Commission would have to await until their commitments to the Navy had been worked out in full. 16/ Substantially the same story was repeated in the quest for turbines, valves, and gears. Of the needed materials, steel was by far the most important and by far the most critical.

15/ Memorandum, Rear Admiral E. S. Land to Frank Knox et al., February 4, 1941; United States Senate, 78th Cong., 2nd Sess., Special Committee Investigating the National Defense Program, Report No. 10, Pt. 18, June 23, 1944.

16/ Letter, Rear Admiral E. S. Land to W. S. Knudsen, March 19, 1941.

Throughout 1941, reports were made repeatedly of ships being held up for the lack of steel. At one time, a Kaiser yard reported that all work had been stopped on three vessels because of the need for steel. 17/ However, both the Navy and the Maritime programs were in need of steel. At the same time that the Maritime Commission was reporting a shortage of steel, the starting of two destroyers was held up at the Charleston Navy Yard for the want of steel. 18/

Production Progress to December 31, 1941.--The time lapse between the start of a ship program and the actual production of ships is great, especially when yards and ways have to be constructed before work can start. After facilities have been completed, the actual construction time of larger ships amounts to many months and in case of the larger combatant ships, years. Obviously then, much of the necessary preparatory shipbuilding work done in 1940 and 1941 did not show up in Naval and Maritime completions during that time. Still, the deliveries during these years were not negligible. From July 1, 1941, to December 31, 1941, 2,228 Navy ships of all classes were completed, with a total tonnage of 1,354,000 tons. 49 of these were combatant ships, a figure which included two 35,000 ton battleships, one 19,800 ton carrier, one 6,000 ton light cruiser, and sixteen submarines of 1,526 displacement tons. The rest of the Naval tonnage was made up of landing craft, patrol vessels, and auxiliaries. 19/

Maritime deliveries for the period from July 1, 1940, to December 31, 1941, amounted to 135 ships of 1,551,000 tons. Making up this total were 77 standard high-speed cargo vessels and 37 standard tankers. The Liberty ship program, the design for which had been selected in December 1940, produced seven ships during the last half of 1941, a figure which well illustrates the length of time needed to get a mass-production ship program under way. 20/

Naval Program, January 1942 to June 1943.--Prior to Pearl Harbor a good start had been made on the program to change the United States Navy from a one- to a two-ocean Navy. With the entrance of this nation into the global struggle and with the enormous damage done to our fleet on December 7, 1941, this two-ocean Navy program appeared to be entirely inadequate to meet the existing situation. Within three months after Pearl Harbor the funds appropriated for Navy ships had been increased from \$9,600,000,000 to \$15,400,000,000. And by September 1942 complete

17/ Letter, Henry J. Kaiser to Benjamin F. Fairless, June 30, 1941.

18/ Memorandum, W. H. Harrison to J. D. Biggers, April 24, 1941.

19/ WFPB, "Official Munitions Production Of The United States", July 1, 1942, June 1, 1944.

20/ WFPB, "Official Munitions Production Of The United States", July 1, 1942, June 1, 1944.

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plans had been made for a "Five Ocean Navy", which contemplated quadrupling the size of the existing fleet to bring the total combat tonnage to about 8,000,000 tons. In addition to these great increases, the entire Naval program was accelerated by months. Ships which were previously scheduled for the late months of 1942 were now scheduled for March and April of 1942. And many major units scheduled for completion in 1943 were now brought into 1942 schedules. This "Five Ocean Navy" program, with certain important alterations, has remained in its larger outlines the basic Navy ship program until the present. Paralleling it, of course, was another huge program for Naval facilities, including dry docks and other facilities. 21/

Following the naval engagement in the Coral Sea and the one off Midway Island in May and June of 1942 a major change was made in the heavy combatant ship program. In those two sea battles, 23 ships were sunk by naval air action without the opposing fleets getting in gun range of each other. This fact, together with the experience at Pearl Harbor, convinced the Navy of the tremendous striking power of the carrier compared to that of the battleship. In June 1942, the construction of five battleships and four heavy battle cruisers was indefinitely postponed to make way for the construction of more carriers. 22/

At the start of 1942 the United States Navy had seven carriers, of which four were sunk during that year. Moreover, as of February 1942, only one regular carrier was scheduled for completion in 1942 and twelve more in 1943, 1944, and 1945. After the battle of Midway this lack of balance was hastily corrected. By September 1942 the Navy had scheduled 30 regular carriers and 9 small carriers to be converted from 10,000 ton cruisers. During 1943, six 27,000 ton carriers and all nine of the converted carriers were delivered, thus relieving a critical deficiency in American seapower. 23/

Of particular interest during 1942 and 1943 was the Navy's destroyer escort and aircraft carrier escort programs. From the start of war until December 1942, German submarines had sunk an average of about 450,000 tons of Allied merchant shipping a month. After Pearl Harbor this rate took a decided upturn with the inception of total submarine warfare in the Western Atlantic. During 1942, the United Nations lost an average of about

- 21/ WPB, "Financial Analysis War Program United States", February 10, 1942 (WPB Document 17); WPB, "War Progress", No. 108, October 9, 1942; Memorandum, W. H. Harrison to Donald Nelson, February 2, 1942.
- 22/ WPB, "War Munitions Progress Report", June 16, 1942 (WPB Document 96).
- 23/ WPB, "Official Munitions Production Of The United States", April 1, 1942, July 1944; Navy, Bureau of Ships, "Combatant Vessels Under Construction", February 1, 1942.

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750,000 tons of shipping a month, and by September 1942 the total tonnage of merchant ships available to the United Nations was about 10,000,000 tons less than the total available in 1939. 24/ Obviously, the United Nation's war effort was seriously curtailed if not imperiled by this wholesale destruction of merchant shipping.

At the time of Pearl Harbor, and for months thereafter, this nation had to rely almost entirely on the destroyer to protect its merchant convoys. But the United States had entirely too few destroyers for the task, and the destroyers available were often needed elsewhere. As pointed out before, during 1940 and 1941 the Navy had concentrated on large combat ships and had neglected smaller craft. During that period anti-submarine type crafts had comprised only about six percent of the total naval deliveries. In the face of steadily mounting losses, this was raised to about 22 percent in 1942 and about 40 percent in 1943. 25/

Relying on British experience, the United States Navy started the construction of two special types of vessels to control the submarine menace. The first of these was the aircraft carrier escort, a converted merchantman carrying planes, and the second, the destroyer escort. Two more or less experimental carrier escorts were constructed in 1941, and 13 were delivered in 1943, 5 of which were sent to the British. During 1943, 50 carrier escorts were constructed, 31 by the Navy and 19 by the Maritime Commission. 40 more escort carriers were scheduled for 1944. As predicted by its advocates, the carrier escort has been signally successful in combating the submarine. 26/

As its main anti-submarine craft, however, the Navy devised the destroyer escort. This was a 1,500 ton craft, about two-thirds the size of the large destroyer and twice the size of the largest submarine chaser. The first destroyer-escort contracts were let in January 1942. Their construction was hampered, however, by interference from the landing craft program, and the first destroyer escort was not completed until January 1943, thirteen months after the United States had entered the war. Reflecting the spiralling rate of sinkings by submarines, the destroyer-escort program was repeatedly raised during 1942 until 750 of them had been scheduled for delivery before 1945. Meanwhile, the Navy, because of its lagging anti-submarine craft program, had to convert hundreds of pleasure and commercial vessels into coast guard and escort work. 27/

24/ WPB, "War Progress", No. 163, October 1943.

25/ WPB, "War Progress", No. 125, February 5, 1943.

26/ WPB, "War Progress", No. 119, December 25, 1943; WPB, "Official Munitions Production Of The United States", June 1, 1944.

27/ WPB, "War Progress", No. 102, August 28, 1942; Progress Division, WPB, "Report to the War Production Board", August 1942 (WPB Document 130).

The submarine war became so serious in 1942 and the production of destroyer escorts lagged so badly that the destroyer-escort program was raised at the end of the year to a position of the highest urgency on the President's "Must Programs." ^{28/} At the same time, the WPB made available to the program its special expediting service that had been so successful in the first landing craft program. Rated as an AA-1 program, the production of destroyer escorts first exceeded the current schedule plus past deficits in October 1943. But for the year 1943, 306 such ships were produced as against a schedule of 260. The ultimate result of these production figures was reflected in the sharply declining rate of ship sinkings. By September of 1943 the destroyer-escort program was being cut back. ^{29/}

Of pre-eminent importance to strategical developments abroad was the Navy's landing craft program. Measured by either tonnage or cost figures, the landing craft program was the largest small vessel program scheduled by the Navy. Starting with a few tank lighters of assorted shapes and sizes in 1937, the landing craft program by 1944 included thousands of vessels ranging in size from small rubber raiding boats of a few pounds to ocean-going vessels of 4,500 tons and over. Among the most important types of landing craft which have been developed for amphibious warfare are the LVT's (Landing Vehicle, Tracked) which are able to operate on both land and water and which, when armored, are really seagoing tanks; the LSM's (Landing Ship, Medium) of 490 tons, which are designed to carry men and equipment through very shallow waters; the LST's (Landing Ship, Tank) ocean-going ships of 1,490 tons which carry tanks and other heavy equipment items to a beach and discharge them through their open bow; and the LSD's (Landing Ship, Dock), which transport other landing craft and which act as repair ships for other landing craft.

Landing craft schedules have naturally reflected future amphibious operations. The first great landing craft program was started in April 1942 when the Navy was ordered to provide craft for the North African and Pacific operations scheduled to start in the fall of that year. When the final requirements for these indispensable vessels were totalled in September 1942 the long-time program was tremendous in size. By that time landing craft requirements totalled 9,598 vessels of varying size to be delivered by the end of 1946. ^{30/}

^{28/} Letter, Rear Admiral E. S. Land to W. Francis Gibbs, January 21, 1943.

^{29/} Progress Division, WPB, "Monthly Report to the War Production Board", January 1944 (WPB Document 270).

^{30/} Progress Division, WPB, "Monthly Report to the War Production Board", October 1942 (WPB Document 142).

Since most of the regular shipbuilding yards were busy with other types of Navy vessels, landing craft orders had to be given to small boat yards, bridge construction companies, and other manufacturing concerns. By June 30, 1942, contracts for landing craft had been let to 5 Navy yards, 22 major private yards, 11 minor private yards, 12 small boat yards, and 29 manufacturing companies, some of which had never built ocean-going boats before. Of the total number of landing craft yards, 21 were located in the Mississippi River-Great Lakes water sheds. ^{31/}

Both of the great landing craft campaigns have been characterized by the extreme shortness of time between the date on which the military planners ordered the craft and the date by which they were to be completed. By August 1942, landing craft deliveries were so far behind the impossible schedules which had been set in April that a special program to expedite them was organized. Landing craft were put in the most urgent category of vessels wanted by the Navy and all landing craft were given an AA-1 priority rating. Thereafter a special WPB organization was created to work with the Navy to expedite the delivery of landing craft materials and components. With this special aid, landing craft deliveries, which had been running 50 percent or more behind schedules in September, met the schedule in full by December 1942. And by February 1943, production was so great that the program was leveled off thereafter to about half the rate of that month's production. From July 1940 to December 1941 the Navy had produced 8,328 tons of landing craft; 230,000 tons were produced in 1942, and 793,000 tons in 1943. ^{32/}

The second great landing craft program was started after strategic plans had been made for the invasion of Western Europe. To make the second front possible, schedules for landing craft were increased sharply in September, October and November 1943. ^{33/} As in the first program, the time between the planning of the program and the expected delivery dates was desperately short. It was not until December 1, 1943, that a final decision was made on the exact amounts of landing craft needed for the invasion of France. Between that date and the deadline date of May 31, 1944, the schedules called for the delivery of about 675,000 tons of landing craft. This figure represented the absolute maximum which the Navy thought it possible to produce.

^{31/} WPB, "War Progress", No. 117, December 11, 1942.

^{32/} WPB, "Official Munitions Production Of The United States", July 1, 1944.

^{33/} Bureau of Ships, "Landing Craft Progress Report", September, October, November, December 1943.

On December 1, 1943, the delivery of these requirements looked like an almost impossible task. And up until April 1944 deliveries for each month lagged badly behind the published schedule. But in April and May 1944 production shot up under the impetus of a great campaign. By May 31 total deliveries for the six months came within 12,000 tons of meeting the schedules. Undoubtedly this was one of the most successful high-speed jobs of war production accomplished by this nation. 34/

The WPB played an important part in this second landing craft program. Three months before the final decisions were made on the quantities of craft needed, the WPB was advocating increases on the grounds that the existing schedules were inadequate to meet future requirements. 35/ While on a trip to England in September, Donald Nelson conferred with high military authorities there and found that they considered the existing schedules for landing craft to be inadequate. He immediately cabled Charles E. Wilson asking him to do everything possible to increase the production of landing craft. 36/

Within two days after landing craft requirements were finally set, an organization within the WPB was created to help expedite materials and components for the program. Within the next five months this organization handled well over 2,000 requests from the Navy for special priority assistance. In answer to these requests the WPB granted over 2,200 directives on materials and components for landing craft valued at \$41,452,451.00. 37/ That the work of this WPB organization was effective was evident in the Navy statement that "sufficient quantities of materials and components" were being supplied to assure landing craft production on schedule. 38/

Total Navy Production, January 1, 1943 to May 31, 1944.—On June 30, 1940, the total tonnage of the United States Navy amounted to 1,875,000 tons; on December 31, 1941, the total tonnage was 2,636,000 tons; by May 31, 1944, that figure had been increased to 7,142,000 tons. In other words, in two-and-a-half years approximately 4,500,000 tons of ships had been added to the Navy. Included in that total tonnage were 7 battleships, 4 heavy cruisers, 19 light cruisers, 19 aircraft carriers,

34/ Minutes, War Production Board, Meeting LXXXIII, June 13, 1944.

35/ Progress Division, WPB, "Monthly Report to the War Production Board", July 1943 (WPB Document 242).

36/ Cablegram (State Department paraphrase), Donald M. Nelson to Charles E. Wilson, (Through Ambassador Winant and Secretary of State) September 27, 1943.

37/ Special Rating Branch, WPB, "History of the Accelerated Landing Craft Program", no date.

38/ Memorandum, "Statement of the Navy Department Before the War Production Board on Landing Craft Production", April 4, 1944 (WPB Document 291).

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191 destroyers, 121 submarines, 129 destroyer escorts, and 49 aircraft escort carriers. ^{39/} In addition to these major combat ships, 34,850 landing craft of 1,600,000 total tons had been produced along with hundreds of auxiliary vessels and other types of smaller craft. ^{40/}

Maritime Shipbuilding Program January 1, 1942 to June 1944. -- After Pearl Harbor this nation's merchant shipbuilding program began a fateful race with the German submarine. As submarine sinkings skyrocketed during 1942, merchant shipbuilding schedules followed. About 3,100,000 tons of United Nation's shipping had been destroyed by submarines in 1940, and another 3,100,000 tons had been destroyed in 1941. During 1942 the comparable figure was 9,200,000 tons. This great increase in sinkings resulted in part because the United States Navy was not prepared to perform an adequate job of convoying. During the first World War the ratio of escort vessels to merchantmen had been about one to three. In 1942 that ratio, because of the lack of escorts, varied between one to five and one to ten. Beyond the paucity of escort vessels the submarine had the advantages in the second war of more accessible bases, a far greater operational range, much greater speed, and a significant increase in numbers. In January 1943 Germany had about 400 submarines in service; the number during the First World War was never greater than 140. ^{41/} These things added together meant wholesale destruction of United Nations shipping and an herculean job for the United States Maritime Commission. In the words of the WPB Planning Committee, the Commission's really "impossible job" was to build merchant ships faster than an "unmolested enemy" could sink them. ^{42/}

As sinkings rose during 1942, the shipbuilding schedules for deliveries advanced rapidly. Four separate increases took place by June 1942. At that time the schedules called for the construction of 8,300,000 tons of shipping in 1942 and 19,900,000 during 1943. ^{43/} This goal of about 27,000,000 tons of shipping in two years remained with some downward alterations as the shipbuilding objective by January 1, 1944.

There were many obstacles in the way of achieving this tremendous merchant shipbuilding program. Much of the program had to wait on the construction of new shipyards and new ways. Once built, the new yards

^{39/} WPB, "War Progress", No. 158, September 25, 1943.

^{40/} WPB, "Official Munitions Production Of The United States", June 1, 1944.

^{41/} WPB, "Merchant Ship Sinkings and the Submarine War" (WPB Document 188).

^{42/} Planning Committee, WPB, "Maritime Shipbuilding Program", Recommendation No. 5, May 16, 1942.

^{43/} Planning Committee, WPB, "Report on Maritime Shipbuilding Program", July 20, 1942 (Planning Committee Document 133).

required time to learn the "know-how" of mass production shipbuilding. Moreover, shipyards were constantly plagued with manpower and materials problems. To some extent the wage stabilization plan for shipyards worked out with WPB assistance prevented acute labor trouble, but at the end of 1942 it was estimated that the shipbuilding industry would need 900,000 additional workers to maintain peak production at all yards. ^{44/} More serious than the actual number of workers involved were the problems of labor turnover and the need for training the available labor in the particular skills wanted. In March 1942 the California Shipbuilding Company had a total of 22,000 workers, but only 700 of those employees had any previous shipbuilding experience. At that time training was being given or had been given to 14,000 employees. ^{45/} The turnover of labor continued to be a problem through 1943. In May 1943 the average turnover of labor for all shipyards was 11.2 percent of the personnel. Only 2 percent of this was attributable to selective service. After that date, however, the War Manpower Commission's restrictive orders proved to be of substantial help in reducing labor turnover. ^{46/}

Throughout 1942 and 1943 the merchant shipbuilding program was held up from time to time by the shortage of gears, turbines, diesel engines, valves, and steel. Of all these items, the most serious shortage was the one existing in steel plates and shapes. At one time in 1942 the lack of steel was reported to be holding up production in most of the Pacific Coast Yards. ^{47/} During this period of the war the total supply of steel was far below the total requirements and so all claimants suffered. But the Maritime Commission, because of its unfavorable priority position as compared to the Army and Navy, was hurt much more than either of these Services. Throughout 1942 the Navy aggravated the Maritime Commission's steel problems by diverting steel from the merchant ship program by means of its higher priorities. ^{48/}

Up until December 1941 the Army-Navy Munitions Board had granted merchant vessels an equal priority with Naval construction. After December 17, 1941, however, this was no longer true and the merchant-ship program thereafter was given an inferior priority rating. The Maritime Commission received almost daily notifications of delays due to this priority disparity. Appealing to the Army-Navy Munitions Board for equal status, Rear Admiral Vickery estimated that it would delay the program by as much as five months and would be particularly harmful to the production of tankers. ^{49/} But no relief was given to the Commission despite the judgment of the Commander of

^{44/} Minutes, War Production Board, Meeting VI, February 24, 1942.

^{45/} WPB Press Release 442, March 6, 1942.

^{46/} WPB Press Release 3415, May 4, 1943.

^{47/} Minutes, War Production Board, Meeting XXII, June 30, 1942.

^{48/} Minutes, War Production Board, Meeting XXII, June 30, 1942.

^{49/} Letter, Rear Admiral H. L. Vickery to Army-Navy Munitions Board, January 22, 1942.

the United States Fleet that there was little use in producing all the materials of war unless we could transport them abroad. 50/ Instead, this unequal priority treatment was carried to the point where aircraft escort carriers being constructed by the Maritime Commission carried a lower priority than similar Navy construction. 51/

When the entire priority system was revised in May 1942, the priority granted to the merchant-ship program by the Army-Navy Munitions Board was still inferior to the priorities granted to the Naval program. This was done in spite of the fact that the submarine campaign had reached a peak of destructiveness and the entire war effort of the United Nations was being threatened by the deficiency of shipping and the tremendous loss of cargo on the high seas. Whereas an AA-1 priority was granted at that time to all Navy vessels that could be completed before March 31, 1943, a similar rating was given to only 50 percent of the Maritime program that was to be completed before January 1, 1943. 52/ Even then there had been little conceded to the Maritime Commission for a WPB analysis of the shipbuilding program revealed that 50 percent of the 1942 program was to be completed by August 1942. Since the materials for these ships had to be delivered in May 1942 to insure delivery by August, the analysis concluded, "no materials are listed for the Maritime Commission in the AA-1 category." 53/ But, despite protests by the WPB Planning Committee, the inequality in priorities was continued. 54/

One of the chief reasons contributing to this inequality in priorities was the lack of proper Maritime representation on the Army-Navy Munitions Board. The Maritime Commission had representatives to this Board that determined priorities for all munitions, but they were in a subsidiary position, and on a numerical basis alone could be outvoted by the representatives of the Army and Navy. Some of the inequalities resulting from priorities might have been alleviated had the WPB Shipbuilding Division been more energetic in aiding the Maritime program. But apparently this division lacked either the disposition or the energy to act strongly in behalf of the Maritime program. In the summer of 1942 the Navy, by means of its superior priorities, was placing orders in plants booked solidly with Maritime orders, thus setting back the delivery of needed components for merchant ships. Commenting on these delays, the WPB Planning Committee observed that "with the exception of scheduling main propulsion equipment, especially turbines and gears and electro-drive mechanism, the Shipbuilding Branch of W.P.B. is paying little attention to this problem." 55/

50/ Memorandum, Commander-in-Chief United States Fleet to The Secretary of the Navy, February 20, 1943 (WPB Document 32).

51/ Minutes, War Production Board, Meeting VI, February 24, 1942.

52/ Letter, Army and Navy Munitions Board to Donald M. Nelson, May 20, 1942.

53/ Memorandum, Bertram Fox to Stacy May, June 2, 1942.

54/ Planning Committee, WPB, "Report on Maritime Shipbuilding Program, July 20, 1943 (Planning Committee Document 133).

55/ Planning Committee, WPB, "Report on Maritime Shipbuilding Program", July 20, 1942 (Planning Committee Document 133).

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Perhaps it is not out of place to observe here that both the Maritime Commission and the WPB Shipbuilding Division were headed by retired Navy personnel. Because of this fact it may have been that the needs of the merchant shipbuilding program may not have been presented strongly enough when they ran counter to the needs of the Navy program. At least it may be questioned whether, as a matter of good administration, it is advisable to staff a vital wartime agency with personnel attached in their loyalties in any way to another agency, when those agencies are likely to be in competition for scarce materials, components, and facilities.

Merchant Shipbuilding Production: January 1942 to May 1944.--

The first eight months of 1942 were a critical time in this nation's merchant shipping program. For during this time deliveries were lagging badly. On the other hand, the rate of sinkings by submarines was ascending. In only one month out of the eight, July, did new construction in this country exceed in tonnage the amount of losses at sea. Consequently, the size of the United States merchant fleet and that of the United Nations was rapidly approaching the danger point. In March 1942 it was noted that the shipbuilding program probably presented "the most serious aspect of the munitions program." 56/

From September 1942 on, however, the merchant shipping situation rapidly grew better. For one thing, the mass production of merchant ships began to result in mass deliveries. During the last quarter of 1942 the Maritime program delivered a total of 286 ships as compared with 68 in the first quarter. 57/ In conjunction with that fact, submarine sinkings began to decline slightly. Deliveries were so good during the last quarter of 1942 that the President's goal of 8,000,000 tons for the year was exceeded by 9,000 tons. This rapidly accelerating pace continued, with the construction during 1943 of 18,300,000 tons of shipping. Moreover, in 1943 the submarine menace was gradually brought under control. With construction outstripping sinkings in virtually every month in 1943, the decline in the size of the United Nation's merchant fleet was stopped, and relative increases made. By October 1943 the size of that fleet was back to what it had been in June 1940. From that time on, submarine sinkings dropped steadily while monthly construction figures mounted. By May 1944 the United Nation's merchant fleet rose to 67,000,000 deadweight tons as against the low point of 43,000,000 tons, and about 55,000,000 tons at the start of the war. In May 1944 new construction in the United States totalled 1,600,000 tons; sinkings of all United Nations vessels amounted to 35,000 tons. From July 1, 1940, to May 31, 1944, Maritime yards had delivered about 36,000,000 deadweight

56/ WPB, "War Progress", No. 77, March 6, 1942, No. 102, August 28, 1942.

57/ WPB, "Official Munitions Production Of The United States", March 1943.

tons of ships. American aptitude for construction had vanquished German power of destruction. 58/

In making the above deliveries the American shipyards participating in the program broke all established shipbuilding records. In 1941 the average time consumed in the construction of a Liberty ship from keel laying to delivery was 235 days. By the end of 1942 the average for all yards had been reduced to 56 days. Particularly brilliant in 1942 was the record set by the Oregon Shipbuilding Corporation in completing a ship in 14 days. 59/

The overall tonnage record set by the Maritime program would have been impressive if it had included nothing but merchant shipping. But from 1942 on, the Maritime Commission built an increasing number of vessels for critical Navy programs. Maritime yards constructed 19 military-type vessels in 1942, 167 in 1943, and were scheduled for over 250 such vessels in 1944. By types, these military vessels ranged from aircraft escort vessels, landing ships, tanks, and corvettes to troop transports. In 1943, for example, 31 of the 50 vessels converted to the escort carriers were constructed by the Maritime Commission. 60/ In the same year, 60 IST's were constructed in Maritime yards. After the German submarine had been apparently brought under control, the Maritime Commission was asked by the Navy to construct appreciable numbers of special troop transports and attack transports. 229 transport-attack and cargo-attack vessels and 47 troop-ships were scheduled for 1944. 61/ As each one of these types of military vessels was of special design and required a large amount of special outfitting, they interrupted the cycle of production for merchant ships. For every ton of special military vessels constructed, the Maritime Commission lost an equivalent four or five tons of merchant shipping.

Another great change was made in the Maritime program when submarine sinkings declined sharply. That was the gradual substitution of the Victory ship for the Liberty ship. The Liberty ship, or the "Ugly Duckling" as it had first been known, was strictly an emergency ship. It was a slow ship, an ungraceful ship, and none too large as standard cargo vessels go. It had been constructed because it had been capable of fast mass production and because it used relatively few of the more critical components needed in urgent combat vessels. However, these same features useful in an emergency would militate against its usefulness in peacetime. In ordinary

- 58/ WPB, "War Progress", No. 195, June 10, 1944; WPB, "Official Munitions Production Of The United States", June 1, 1944.
 59/ WPB, "War Progress", No. 94, July 3, 1942, No. 112, December 11, 1942.
 60/ WPB, "War Progress", No. 172, January 1, 1944.
 61/ WPB, "War Progress", No. 179, February 19, 1944.

times, it was feared, the competition of more powerful, larger, and faster cargo vessels of foreign nations would drive it from the seas. Proposals were therefore made in the middle of 1943 to substitute the construction of a new ship, the so-called Victory ship for the Liberty ship. The new Victory ship was to be longer and wider than the Liberty ship, more elaborately fitted, and with considerable more power and speed. Whereas the top speed of the Liberty type was 11 knots, the speed of the new Victory ship was to be 15 knots. It was estimated that the new Victory ship would cost \$238 per ton as against \$170 for the Liberty and that it would require double the time to construct. 62/

Previous to 1943 there had been some support for constructing faster merchant ships on the grounds that their greater speed would better protect them from submarine attack. But each time the proposal was made it was defeated on the score that a faster ship would take longer to construct and that it would require main propulsion units that were critically needed for combat ships. Raising the same objections in 1943, Charles E. Wilson refused to authorize materials and components for the new Victory ship until its construction had been approved by the Combined Shipbuilding Committee and the Combined Chiefs of Staff. 63/

The Combined Shipbuilding Committee had been created to standardize the design of all ships in this nation's shipbuilding program. 64/ W. F. Gibbs, WPB Controller of Shipbuilding, was its chairman. Gibbs, who had attempted without too much success to standardize Navy designs had had better luck on the Maritime program. Acting as WPB Controller of Shipbuilding and as Chairman of the Combined Shipbuilding Committee, W. F. Gibbs had been instrumental in reducing the number of types of geared turbines used by the Maritime program from 27 to 9, the number of types of turbo-generator sets from 77 to 17, and the number of types of tugs constructed from 23 to 7. 65/

62/ Minutes, WPB, Meeting LVIX, May 25, 1943; WPB, "War Progress", No. 176, January 29, 1944.

63/ Letter, C. E. Wilson to Ralph Cordier, March 24, 1943.

64/ As one illustration, Gibbs had pointed out early in 1943 that the Navy was constructing five different types of destroyer escorts and corvettes and that each type had a different main propulsion unit. His argument, however, that standardization would mean a great saving in manpower, materials, and time was overruled by the Navy on the grounds that they were too far committed to the existing programs to effect a change. Letter, W. F. Gibbs to J. V. Forrestal, January 19, 1943.

65/ WPB Press Release 4089, August 22, 1943.

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The Combined Shipbuilding Committee approved the construction of Victory ships after a simplified type of geared turbines had been substituted for the Lenz engines in the original design. ^{66/} After this decision the first few Victory ships were scheduled and the first delivery was made in February 1944. ^{67/} In January 1944, when it was obvious that the submarine menace was being substantially controlled, sharp cuts were made in Liberty ships, and increased numbers of Victory ships were added to the 1944 schedules. As of June 1, 1944, 741 Liberty ships and 129 Victory ships were scheduled for production in 1944. For 1945, 104 Liberty ships and 278 Victory ships were scheduled. ^{68/}

- ^{66/} Memorandum, Charles E. Wilson to Ralph Cordiner, May 13, 1943.
^{67/} WPB, "Official Munitions Production Of The United States",
June 1, 1944.
^{68/} WPB, "Official Munitions Production Of The United States",
June 1, 1944.

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Blockading Ports Under Espionage Act

	Total Maritime Deliveries		Standard Cargo Vessels	
	No.	DWT Tons (000)	No.	DWT Tons (000)
1940 Second Half	31	357	18	185
1941 First Half	46	538	32	323
Second Half	58	628	27	242
1942 January	16	199	3	26
February	25	280	4	33
March	26	292	2	17
April	36	401	1	11
May	57	620	2	19
June	66	732	2	19
July	71	792	4	35
August	68	752	3	28
September	93	1,016	7	63
October	81	890	7	64
November	84	893	2	17
December	121	1,197	11	100
Total 1942	746	8,090	49	444
1943 January	102	1,008	4	39
February	130	1,236	14	139
March	145	1,513	19	181
April	154	1,603	15	140
May	173	1,785	12	121
June	161	1,671	18	172

SION DELIVERIES
o May 31, 1944

Liberty Ships		Victory Ships		All Tankers	
No.	DWT Tons (000)	No.	DWT Tons (000)	No.	DWT Tons (000)
				9	134
				11	185
7	72			17	248
6	62			7	111
16	171			4	66
20	213			4	62
32	341			3	49
52	555			3	46
58	622			5	81
60	642			6	96
59	635			4	62
74	794			7	109
68	732			4	68
70	754			5	85
82	885			10	165
597 ^a	6,402 ^a			62	999
79	852			5	85
81	874			9	152
103	1,112			12	193
110	1,187			13	213
120	1,295			15	245
115	1,247			11	187

August	172	1,706		15	140		110	1,187				15	272
September	165	1,662		7	81		106	1,144				22	320
October	167	1,681		7	61		98	1,058				35	474
November	169	1,698		12	120		89	961				36	507
December	219	2,059		17	170		118	1,274				35	513
Total 1943	1,949	19,296		156	1,519		1,238	13,361				214	3,410
44 January	131	1,211		9	89		73	788				15	223
February	148	1,382		18	178		78	842		1	11	19	312
March	163	1,549		16	156		83	896		4	43	22	356
April	161	1,600		20	192		79	853		10	109	18	338
May	162	1,545		14	138		67	724		16	174	23	390
a. Revised													
Source:	WPB, "Official Munitions Production of The United States".												

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NAVY DEPARTMENT
BUREAU OF SHIPS
WASHINGTON, D.C.

Ss

C-FS/L9-3 (SAX)
EN28/A2-11

1 February 1941

~~CONFIDENTIAL~~

From: Bureau of Ships.
To : All Commandants of Naval Districts less
Sixteenth Naval District.
All Supervisors of Shipbuilding, USN.
Subject: Ship Conversion, Repair and Overhaul Work at
Private Shipyards.

References:

- (a) Naval District Manual - 1927.
- (b) Opnav ltr. Op-23M-VS(SC)A16/ND12 Serial 5898 of Apr. 25, 1939, to Comdts. of all Naval Districts.
- (c) Contracts with private yards - alteration and repair.
- (d) Buships ltr. FS/L9-3 (MA) of Aug. 26, 1940, to Comatron, Comdesatron, Combasesfor, Cominbatfor, Comairscofor, Comsubron 2.
- (e) Opnav ltr. Op-23-MY (SC) A16/ND Serial 0104923 of Nov. 28, 1940 to Comdts. of all Naval Districts and Comdts. of all NYds.
- (f) Buships ltr. YY/L9-3 (MPC) of Oct. 8, 1940 to Comdts. 1,3,4,5,6,10,11,12,13,14,15,16 N.D., Comdt. Guantanamo and Gov. Guam.
- (g) CNO ltr. Serial 140230 of July 1, 1940 to Comdts. 3,5,8,12 N.D., Info. Comdts. 1,4,6,7,9,11,13 N.D. and Cincus.
- (h) Buships ltr. Q51-(9)(SAX) EN28/A2-11 of Dec. 21, 1940, to Comdts. 1,3,5,6,7,8,11,12,13,14,15,16 N.D. -
- (i) Buships ltr. LE (MA) of July 26, 1940 to Comdts. 1, 3,4,5,6,11,12 N.D.
- (j) Buships ltr. FS/L9-3 (MMM-MMH) EN28/A2-11 of Oct. 25, 1940 to Comdts. of all Naval Districts.

Enclosures: (herewith - to Supervisors of Shipbuilding only)
(A) Copy of reference (b).
(B) Copy of reference (c).

FS/L9-3 (SAX)
EN28/A2-11

Enclosures: (cont'd)
(G) Copy of reference (d).
(D) Copy of reference (e).
(E) Copy of reference (g).
(F) Copy of reference (h).

Purpose

1. The references outline the procedure to be followed in handling matters pertaining to the accomplishment of repair, conversion and overhaul work by the Naval Districts. The Bureau desires to follow during the present emergency the procedure which would become effective during war, as far as practicable, in the interest of developing an organization and personnel capable of performing these functions of the Naval Districts during war.

Summary of the References

2. References (a), (b) and (c) require the District Commandant to inspect, supervise and coordinate the work of repair, conversion and overhaul within his District. Reference (a) provides that the Commandant shall work through the District Material Officer to accomplish the above. Reference (b) provides for the organization of the District Material Officer and emphasizes that for vessels under cognizance of that officer "readiness on the date set is the paramount consideration." This reference requires inspectors at private shipyards to supervise the execution of conversion and repair work in accordance with work lists prepared by the District Material Officer and to make technical decisions on the spot in accordance with policy laid down by the District Material Officer. Reference (c) provides that the Naval Inspector determine the "estimated fixed price" and perform other duties of his office. Reference (j) authorizes Naval Inspectors to approve job orders on the spot for overhaul and repair work, regardless of amount, providing the project allotment is not exceeded. Reference (d) sets forth the procedure for overhaul work at private yards and provides that the Commanding Officer of the ship shall be the Naval Inspector for such overhaul and repair work. For the purpose of decentralizing authority for initiating and releasing assigned projects, reference (e) gives the District Commandant authority for:

(a) The assignment of ships to Navy Yards for conversion or repair, subject to the approval and designation of priority by the Chief of Naval Operations.

(b) The assignment of ships to private yards under contract.

(c) The preparation and approval of detailed conversion and repair specifications and conversion plans, when required, for ships made available by himself.

(d) The inspection and follow up supervision to insure prompt completion.

Summary of the Referen-
ces Reference (e) also gives the Office of Shore Establish-
ments Division of the Navy Department authority to direct
the transfer of civilian personnel between the Navy Yards
(or other available sources) and the District Material
Offices, as needed, when recommended by the District Com-
mandant, and authorizes the Commandant to call upon any
Navy Yard within the District for certain technical
assistance, such as, preparation of plans and specifica-
tions for conversion and repair work being done at private
yards. Reference (f) outlines the procedure for mainte-
nance of District Craft. Reference (g) announces the in-
tention of executing alteration and repair contracts with
commercial yards and enjoins the District Commandants to
develop District personnel for these activities, and
directs that the Bureau of Ships communicate the details
of arrangements for this work. Reference (i), also in
regard to conversion and repair, emphasizes the authority
of the District Commandant to authorize changes and out-
lines the Bureau's requirements regarding completion data.

3. Under present conditions the following covers
the procedure employed in acquiring merchant vessels and
Procedures in handling repair, overhaul and conversion work on mer-
chant vessels and existing Naval vessels assigned to Naval
Districts for accomplishment:

Secretary of the Navy (a) The Secretary of the Navy directs the Chief of
Naval Operations to select by name a vessel suitable for
conversion to a specific type.

Chief of Naval Operations (b) The Chief of Naval Operations, after investigat-
ing all matters relative to the types of vessels available,
selects the vessel by name, determines the principal con-
version features to be embodied in the vessel to be con-
verted and, whenever practicable, indicates a date on which
the completion of conversion work is desired.

Buships
Acquires
Vessel

(c) The Bureau of Ships conducts negotiations, with the assistance of the Maritime Commission, either directly or through the District Commandants, leading up to the acquisition of the vessel selected. In any case, the final negotiations and execution of the contract must be completed by the Department upon the approval of the Secretary of the Navy in accordance with the requirements of law. This legal requirement does not permit execution of contracts by field agencies although such agencies may conduct, upon request of the Bureau, the necessary preliminary negotiations and provide sufficient information to enable the Department to complete the contracts without the presence of the owners.

Buships
Designates
Naval Dist.

(d) The Bureau designates the Naval District in which the delivery and conversion work will be undertaken.

Buships
Arranges
Delivery

(e) After obtaining information as to the conversion yard in which the District Commandant desires the conversion work to be accomplished, the Bureau arranges for delivery of the vessel at that conversion yard, or elsewhere as desired by the Commandant.

Buships
Furnishes
Conversion
Directive

(f) The Bureau furnishes the District Commandant or his designated representative with the general conversion directive, arrangement plans and other information as are available.

Principles
Now Apply

4. After acquisition and delivery of the vessel, in accordance with the procedure outlined above, the following basic principles relative to the accomplishment of repair, overhaul and conversion work obtain:

Comdt.
Charged
with Con-
version

(a) The District Commandant is responsible for all conversion, repair and overhaul work assigned to the District, subject to the limitations imposed by paragraph 3(a)(1) of reference (c).

Comdt.
Effects Work

(b) The Commandant of the District effects the work of repair, overhaul and conversion.

Supship
Handles
Conversions
in Yards
with New
Construction

(c) Where overhaul, repair or conversion work is undertaken in any one private shipyard concurrently with new construction, such overhaul, repair and conversion work at that plant should be handled, wherever practicable, by the Supervisor of Shipbuilding at the plant. This procedure is considered to be in the interest of coordination and simplification of relationships with the Yard.

Comdt. or his
Representative
Determines
Work

(d) The Commandant or his designated representative determines the items of work to be accomplished in accordance with the General Conversion Specifications, the plans and other specifications furnished by the Bureau.

Commanding
Officer Repre-
sentative of
Commandant

(e) The Bureau expects that the services of Commanding Officers, prospective Commanding Officers, and other ships' officers will be utilized in overhaul, repair and conversion work, wherever practicable, for inspection purposes or as otherwise best suited to meet conditions.

Comdt. or his
Representative
Authorizes
Changes

(f) The Commandant or his designated representative is authorized to depart from the General Conversion Specifications, the plans and the conversion directive at his discretion, having due regard for those items affecting time of final conversion, stability, water tight integrity, the military characteristics of the vessel, and work which would result in exceeding the funds made available for the conversion work.

Buships
Investigates
Procurement

(g) The Bureau will designate the machinery and other material to be furnished by the Bureaus. The contractor will purchase all other material. The Bureau may initiate investigations of sources of supply and possible delivery dates of machinery and material to be purchased by the contractor, the procurement of which might delay final conversion, and in such instances will advise the Commandant or his representative.

Comdt. Decides
Changes Re-
quested by C.O.

(h) Request for changes in plans and specifications originating with prospective Commanding Officers or others should be referred to the Commandant or his representative for the necessary action.

Comdt. Notify
Buships Re-
garding Comple-
tion

(i) The Commandant or his designated representative will, after investigation of the work required in connection with the repair, overhaul and conversion of vessels assigned to the District for accomplishment in accordance with the above, inform the Bureau at the earliest practicable date the estimated cost of the work and the estimated time of completion of the conversion work. Where a directive is issued indicating a date on which the vessel is to be completed, the District Commandant will inform the Bureau if it is not possible to complete all of the work covered by the directive within that limiting date, and if not the items which must be omitted to comply with the

assigned date for final conversion and what extension of time is necessary to complete all of the work of conversion.

Marine
Surveyors
Report to
DMO

5. By special arrangement with the Maritime Commission Marine Surveyors have been provided in accordance with reference (1) for work in connection with ships being recommissioned and ships undergoing overhaul at private yards. Similarly Marine Surveyors have been provided in some instances in connection with conversion work at private yards. Reference (1) indicates that the Marine Surveyors report to the Commanding Officers for duty. The Bureau intends that all Marine Surveyors report to the District Material Officer for such duty as he may assign.

S. M. ROBINSON
Chief of Bureau

Copy to:

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FEB 9 1941

Bureau M. & S.
File No. L9-3/A2-11/EN28
(416206) (SC)

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Authority COMMERCE GUIDANCE 2/7/83
 BY LOF NARA, Date 8/9/05

RAW MATERIALS DATA SHEET

 Prepared for the
 ANALYSIS AND REPORTS DIVISION, OFFICE OF IMPORTS
 BOARD OF ECONOMIC WARFARE
 by the
 BUREAU OF FOREIGN AND DOMESTIC COMMERCE
 DEPARTMENT OF COMMERCE

II A

 CONFIDENTIAL
 Information
 Indicated
 by Asterisk *

COMMODITY

Asbestos (Crude)

Canadian and African Critical Grades

Unit: Short ton

Conversion Factor: _____

1. DESCRIPTION, GRADES:

Description: "Asbestos" is a commercial term applied to fibrous varieties of several minerals differing widely in composition, the fibre being diverse in strength, flexibility, and consequent usefulness. The three varieties of asbestos in greatest use commercially are: (a) Chrysotile, a highly fibrous material employed in the manufacture of asbestos textiles, compressed sheet packings, asbestos-cement materials, and other asbestos products; (b) Amosite, a coarse, long, resilient fibre used principally for insulations; (c) Crocidolite (Blue), a fibre with high tensile strength used mainly in asbestos-cement pipe and also, because of its acid-resistant qualities, in certain packings. Chrysotile comprises the major portion of the world production and consumption of both long and short fibres.

The United States produces only about 2½ percent of its present required supplies of asbestos. Domestic production is chiefly chrysotile, mined principally in Vermont and Arizona. The Vermont fibre is short and is comparable to short Canadian fibres. Arizona production includes some long fibres which can be substituted for low iron imported types. Canada accounted for about 85 percent of all asbestos imported in 1942. Imports from Canada are chrysotile and now average 8 percent crudes and spinning or textile fibres, the remainder being shorter, nonspinnable fibres. The supplies of these short fibres are adequate. The major source of imports other than Canada is South Africa, which produces blue, amosite, and the bulk of the critical grades of low iron chrysotile.

Critical Grades: African fibres (chrysotile Grades C & C 1, 2, 3, and 4; amosite B-1, B-3, or D-3, S/DW-1 and M-1; and blue asbestos) are essential for direct and indirect military use and cannot be replaced to any great extent by the spinning grades of Canadian fibre, the supply of which also is limited. African chrysotile grades, chiefly from Rhodesia, have relatively low iron content and are required to meet Navy specifications for essential types of electrical insulation. Amosite, found only in the Union of South Africa, is essential for the manufacture of certain types of insulation for the Navy and the U. S. Maritime Commission. Blue asbestos is produced principally in the Union of South Africa, although some of inferior quality is found in the Transvaal. The blue is used because of its high tensile strength in asbestos-cement pipes and also, owing to its acid-resistant qualities, in packings, filter cloths, etc. Canadian spinning fibres represent the three highest groups of Canadian chrysotile, and are used principally in the manufacture of asbestos textiles.

2. BASIC STATISTICS:

1942 U. S. SITUATION*

Consumption ^a		Supplies	
Military.....	52,345	Stocks 1/1/42.....	23,475
Civilian.....		U. S. prod.....	None
Exports.....		Imports.....	54,038
Total req.....	52,345	African.....	26,401
		Canadian.....	27,637
		Total sup.....	77,513

Gov't stockpile: 1/1/43..... 692
 Objective..... None

Industry stocks: 1/1/43..... 25,311

^a Military and Civilian requirements for crude asbestos are negligible. Requirements are for manufactured products for which a breakdown is not available. Consumption of African grade was 25,610; Canadian grade 26,736.

CANADIAN AND AFRICAN PRODUCTION, 1942*

Country	Amount	% of total
South Africa.....	31,000	25.4
Southern Rhodesia ^a	56,000	45.9
Canada ^b	35,000	28.7
Total.....	122,000	100.0

*Estimated.

^b Represents production of critical grades of crude of a total production of 197,978 tons of crude of all grades.

U. S. IMPORTS^a

Source	1937-39 average	% of total	1942*	% of total
Africa ^b	8,620	40.1	26,401	48.9
Canada.....	12,880	59.9	27,637	51.1
Total.....	21,500	100.0	54,038	100.0

^a Schedule A Nos: 5500.0; 5500.1; 5501.0.

^b Rhodesia and Union of South Africa.

U. S. EXPORTS, 1942*

Exports of Canadian and African grades of asbestos are not shown separately.

U. S. PRODUCTION AND CONSUMPTION

	1937-39 average	1941	1942*
Production.....	None	None	None
Consumption.....	n.a.	n.a.	52,345

Asbestos (Crude), Canadian and African Critical Grades—Continued

3. USES, SUBSTITUTES, RESTRICTIONS:

Uses: The white, highly fibrous, chrysotile from Canada and Southern Rhodesia is used in the production of textiles (including brake linings and clutch facings) and certain grades of building materials.

The brownish gray coarse fibred amosite from the Union of South Africa is used in the production of fireproof board, high temperature insulation, pipe covering, blankets for insulating turbines on combat ships.

The blue crocidolite from the Union of South Africa is used in the production of acid packings, filter cloth, asbestos cement and pipe, because of its resistance to acids.

Substitutes: There is no generally acceptable substitute for asbestos in specific applications where resistance to heat, electricity, acid erosion are prime considerations.

Mineral wool, glass wool and the shorter fibres have been utilized for insulation in some instances in lieu of the critical grades. Asbestos is, however, being used in the war program as a substitute for other materials, e. g., asbestos pipe is being used in some applications in lieu of cast iron and steel pipe. Short fibre in some instances is being used as a substitute for critical grades of long fibre.

Restrictions: Conservation Order M-79, as amended June 18, 1942, restricts the use of fibre from South Africa to priority rated orders and confines certain grades and types to specific uses. Asbestos from the Union of South Africa and Rhodesia was placed under General Imports Order M-63, January 13, 1942. Conservation Order M-123, as amended December 14, 1942, prohibits the use or delivery of asbestos textiles for certain nonessential uses. Conservation Order M-283 provides for the allocation of asbestos textiles.

4. PRICES AND STOWAGE:

Prices (March 18, 1943):

Canadian grades:

Crude No. 1..... \$850-\$750
Crude No. 2 andundry crudes.. \$165-\$385
Spinning fibres..... \$124-\$233
Per ton, f.o.b. Quebec Mines, tax and bags included (Quotations in U. S. funds):

African grades:

Crocidolite crudes..... \$105-\$138
Amosite crudes..... \$100-\$122
Rhodesian chrysotile..... \$ 75-\$285
Per ton, f.o.b. African port:

Stowage: Crude asbestos is packed in cloth bags with no inner liner; gross weight 101 pounds, tare one pound. Cubic measurement, 1.6 cubic feet; stowage factor 34. Some grades occupy 3.4 cubic feet per bag of 99 pounds gross weight and have stowage factor of 78. Stowage factors for crude asbestos from Africa vary from 78 to 90 depending upon the degree of fibre concentration from crude rock.

5. SPECIAL PROBLEMS:

Since only African varieties of asbestos satisfy certain critical military requirements, the essential problem is that of maintaining uninterrupted imports from Rhodesia and Union of South Africa.

Further references: "Asbestos—Critical Grades" in "Commodity Chart Book." W.P.B. Statistics Division, Materials Branch.
U. S. Tariff Commission has studies on Asbestos.

COPY

February 25, 1941

POLICY DOCUMENTATION

OF NO.

8047

SFS. NO.

II B

TO: Mr. George M. Moffett

FROM: G. K. Leith

SUBJECT: General Review of Procurement of Strategic, Critical and Essential Mineral Raw Materials as of February 1, 1941.

From time to time detailed and statistical reports have been made on the progress of mineral procurement. The present review presents only the over-all picture in general terms without detailed documentation.

As a result of the acute difficulties of the Great War, agitation for the accumulation of Government stockpiles of strategic minerals began immediately at the close of the war, and increased in tempo during the last decade. The Army and Navy and many organizations and individuals interested in the subject participated in this effort. Aside from a small expenditure by the Army and Navy from their own funds, it resulted in nothing concrete until June 7, 1939, when a law became effective authorizing the expenditure of \$100,000,000 in four years. Small proportions of the funds under this bill were made available in 1939, but the major part of the total of \$70,000,000 actually appropriated was not made available until the spring of 1940. Additional funds were made available by RFC during the summer of 1940.

When the Defense Commission began its work about June 1, 1940, only a very few purchases had been made. The mineral specialists of the Industrial Materials Branch of the Defense Commission began a study of the materials needed by reviewing a series of reports by seventeen subcommittees of the Mineral Advisory Committee to the Army and Navy Munitions Board prepared during the preceding two years under the general chairmanship of G. K. Leith. The subcommittees were made up of representatives of the Munitions Board, the U. S. Geological Survey, the Bureau of Mines, and specialists from the industries. With this background, conferences were held by the Defense Commission specialists with the trade to bring figures and conclusions up to date. From time to time special recommendations for purchase were made during this period, but it was not until October 18 that the full program was approved by the Defense Commission and transmitted to the buying agencies; namely, the Procurement Division of the Treasury, and the Metals Reserve Company, a subsidiary of the RFC. The delay was due to the requirement that all such recommendations had to have the approval of the Munitions Board before going forward to the Defense Commission itself. This approval was long delayed and some of the items were not approved by the Munitions Board. In spite of this lack of complete approval the program is now being substantially followed by the purchasing agencies.

The recommendations of the Defense Commission of October 18, 1940, for the purchase of strategic minerals are summarized in the following table:

Antimony.....	18,000 short tons.....	\$ 5,040,000
Asbestos.....	20,000 " "	3,000,000
Chromite.....	870,000 long tons.....	31,290,000
Graphite.....	2,000 short tons.....	160,000
Industrial diamonds.....	6,000,000
Manganese ore.....	1,600,000 long tons.....	60,453,000
Mercury.....	10,000 flasks.....	1,600,000
Mica.....	4,700 short tons.....	5,489,000
Quartz Crystals.....	106,900 pounds.....	738,000
Tin.....	159,400 long tons.....	178,775,000
Tungsten.....	13,000 short tons.....	14,300,000
		\$306,845,000

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(Table Continued)

Total.....	\$306,845,000
Contingencies, administrations storage, etc.....	24,283,000
	\$331,128,000

Costs are only estimates based either on past average acquisition costs or current markets.

The totals are considerably higher than Munitions Board figures, partly because of our higher estimates of requirements and partly because of the fact that the Munitions Board figures were adjusted to limited funds available at the time the estimates were made. Events have already shown that even our figures have been in some cases too conservative.

The original program drawn up by the specialists of the Defense Commission, like the original program of the Army and Navy Munitions Board itself, was based on the assumption of a three-year emergency. This was cut to two years to bring it into accord with new plans of the Army and Navy Munitions Board. We still think that supplies should be acquired for a three-year emergency, but this question is more or less academic for the time being because we are so far short of meeting the two-year program.

Later the Defense Commission recommended the purchase of 200,000 tons of copper from Chile and of 6,000 diamond dies from the British Purchasing Commission. It has been active also in efforts to increase zinc smelting capacity.

The statistical position of the stockpile procurement of each of the minerals is summarized in the accompanying diagram.

Present Status. As of February 1st the general averages of the percentages of the various stockpiles then delivered was 17 percent.

Considering industry and Government stocks as a unit, there is no immediate shortage of strategic minerals which cannot be adjusted by voluntary re-distribution within the industries or by the application of priorities. On the other hand, deliveries on the whole are not running much ahead of consumption and in some cases, notably in tungsten, are running behind. With the shipping situation getting steadily worse and industries' requirements growing, it is clear that the stockpile program is not likely to be realized before the emergency is upon us, and that for some minerals, like tungsten, consumption will have made inroads on the limited supplies now at hand. The stockpile program was started too late for prompt realization. On the whole, the situation requires continuously more pressure on imports, domestic developments, conservation, and substitution.

A considerable part of the domestic mining developments in strategic minerals which are now being encouraged will be uneconomic in normal times and will have to be written off when the emergency is over. Also our very limited reserves of such minerals as mercury and high-grade chromite will have been sadly depleted. On the other hand,

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these developments make it possible to test a considerable variety of new processes of extraction, concentration, and use of minerals which may make it possible, even in peace-time, to use certain of our off-grade supplies existing in large quantities. This will be a permanent gain to the nation. The new tin smelter now planned will also probably be uneconomic in normal times but provision is being made in connection with this smelter for a thorough test of certain new processes which, if successful, may make it possible to maintain a permanent tin smelting industry in the United States.

Present status of procurement of each mineral is summarized below:

Antimony. The actual stockpile is about 3 1/2% of the amount required. An additional 18 percent is under order, including about 3,000 tons of domestic production which has been purchased for delivery over one year. The domestic production is smelted from Mexican ores. Additional large tonnages have been contracted for with the Chinese Government in repayment of loans made to them.

The present position is satisfactory with industry stocks well above normal, and arrivals of ore from South America in good volume.

Asbestos. No purchases of asbestos have yet been made by the Government, but negotiations are under way for the purchase of three special varieties from South Africa and Rhodesia. The question of the need of this material has been recently reviewed with the industry and the need confirmed.

Chromite. The actual stockpile is 11 percent of the amount required. Contracts have been made for an additional 32 percent of the amount planned. This situation requires maximum pressure both on domestic developments and on the securing of supplies from abroad. Projects are under way for domestic developments which we hope will help relieve the situation, although at best there will be a delay of a year or more before substantial production begins.

Government and industry stockpiles together will supply industry at the present rate of consumption for about 14.5 months.

Copper. The shortage of copper was not anticipated until the fall of 1940 when the magnitude of the defense program began to appear. Arrangements were then made to purchase 100,000 tons from Chile through Metals Reserve, and later the purchase of another 100,000 tons was authorized by the same organization. The shipments on the first 100,000 tons have begun to arrive in New York, but will not be completed until May or June. In the meantime industry stocks are very low and shortages are being met by individual producer assistance.

Diamond Dies. Industrial diamonds are bored to make diamond dies for the drawing of wires. The dies of the small sizes have heretofore been manufactured exclusively in occupied territory of Belgium and Germany. Supplies are now very short in this country. A small amount has been purchased from the British Purchasing Commission which will be pre-rated in the industry by the Priorities Division. Also arrangements are being made to encourage the manufacturing of such dies in the United States.

Graphite. The actual stockpile is 23 percent of the amount required. No additional amounts have yet been ordered. The only source of graphite of the best grade needed is Madagascar, which is now under British blockade. A recent review of the need of this particular grade of graphite has been made in conference with the industry with the result that the need has been confirmed. Accordingly we have asked the State

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ment to re-open the question with the British of passing a cargo through the trade, and we are informed that this request has now been made to the British by State Department. In the meantime a small amount of graphite is being purchased by the trade which can be used as a not-very-satisfactory substitute for Madagascar graphite.

ment and industry stocks combined will last the industry at the present rate of option about 10 months.

trial Diamonds. As yet no industrial diamonds have been secured for Government pile. Negotiations for purchase have been under way for many months. There has been fortunate delay in setting up the machinery for purchase by the Procurement Division and Treasury. Arrangements are now being rapidly perfected by which it is hoped the purchase will be begun at an early date. An additional supply will be bought by Reserve, but this purchase will not be started until the program handled by Procurement Division is well under way.

total amount of industrial diamonds held by the industry and by brokers and by individuals is supposed to be large, but specialists report that it is impossible to figure because so many of the stocks have been smuggled in.

Bearings. Jewel bearings for watches made of sapphire and synthetic corundum have more been made almost exclusively in Switzerland. The Defense Commission recommended purchase of a Government stockpile of 50,000,000 jewel bearings, but it now appears effectuation of this program may not be feasible, and that efforts of the Government will be concentrated in landing all possible assistance in assuring continued importation of bearings from Switzerland to industry. Arrangements are now being made to encourage the manufacturing of such jewels in the United States.

case. The actual stockpile is now 9 percent of the amount planned. Contracts have been made for an additional 12 1/2 percent of the amount planned; in other words, for an amount which would overrun our objective by about 600,000 tons. This over-buying has been deliberately to allow for failure to realize all the domestic production contracted for.

ment and industry stockpiles will supply the industry at the present rate of consumption about 16 months, and probable domestic production plus Cuban deliveries will supply industry nearly through 1943, even if all imports other than Cuba are cut off.

5. The actual stockpile is about 10 percent of the amount required. An additional amount is now contracted for. In response to exceedingly high prices obtaining during the past year, domestic output has risen to record amounts which have considerably surpassed needs for domestic consumption and exports. In recognition of the fact that relative supplies of Mexican mercury continue to go to Japan, plus the recent increase in demand for mercury in the United States by England, plus the fact that domestic reserves may last only a few years at the present rate of consumption, recommendation has been made to Procurement Division that the remainder of the stockpile be purchased from Mexico. The Procurement Division is now out of the market awaiting quieting down of offerings as a result of an ill-advised press release from Mexico City concerning one of the United States government to buy supplies from Mexico.

ment and industry stocks combined will last industry about 7 months at the current consumption rate.

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The actual stockpile is about 3 percent of the amount required. An additional percent is now under order. Long negotiations with the British Government were at first not productive of much mica but recently larger amounts have been offered. Italian sources have just been investigated by a representative of the Materials Branch, it appears that a sizable percentage of block mica required might be obtained from this source. A smaller amount of Madagascar mica is also needed as soon as it can be secured. Production of amber mica in Canada for use in airplane spark plugs has recently been investigated by Canadian authorities who report that 50 percent increases in output can be made in 1941.

Extensive investigations have been made by the Geological Survey and the Bureau of Mines of mica deposits in New England and North Carolina, and industry is conducting experiments on sizable samples taken from these areas for specific uses.

Government and industry stocks combined will last industry about 16 months, based on the consumption rate as of January 1, 1941.

1. An apparent shortage has recently appeared. Customer demand places this shortage at about 4,000,000 pounds per month but the actual shortage is probably considerably less. Figures are being checked. The International Nickel Company now controls the entire nickel supply and for some weeks past has found it necessary to prorate supplies to the industry. The problem is now under intensive study by the Priorities and Production Divisions.

2. The supplies of the industry are very low.

3. Crystal. The actual stockpile is 26 percent of the amount required. An additional 24 percent is now under order. The shipments so far have shown a high proportion of off-specification material which has been rejected. It will be necessary either to purchase more or change specifications to allow of the use of the rejected material. This is now under consideration.

The actual stockpile is 17 percent of the amount required. An additional 22 percent is now under order. Additional large tonnages have recently been contracted for with the Government in partial payment of loans made to their Government. In preparation for the continuation of that sources in the Far East may be cut off, 18,000 tons per year for 5 years of Indonesian tin (in form of concentrates) have been contracted for, but delivery has not yet started. Plans for a tin smelter are still being considered by Metals Reserve. Production at best cannot begin for over a year and assuming that we will get, in emergency, the Bolivian output, it will meet only about one-half of our requirement. Recovery from scrap and substitutions are being studied but are not yet being put into effect.

Government and industry stocks combined will last industry at the present rate of consumption about 12 months.

4. Tin. The actual stockpile is about 51 percent of the amount recommended. An additional 151 percent is under order, large parts of which represent contracts with the Chinese Government for repayment of loans. Even larger tonnages have been contracted for recently with China also in repayment of loans over a period of a number of years. The specific quantity involved in the Chinese loans is indeterminate because it varies with the market price as of arrival. (On the basis of the present market, the total amounts to about 45,000 short tons, 60% WO₃ basis).

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As a result of enormous defense requirements, the present position is very tight and an order has been issued by the President authorizing the release of ore, as required by defense, from stockpile. No release will be requested until such action becomes imperative.

The domestic production is being increased to the point where it can easily take care of peace-time needs but not emergency needs. Every effort is being made to bring out additional supplies from China over the Burma Road (200 tons are now afloat from Rangoon) and also additional supplies from Bolivia and other sources.

Zinc. Rapid enlargement of the defense program and increased British needs have developed a shortage of zinc smelting capacity, which is being largely remedied by current rehabilitation and expansion of existing plants. So far this expansion has been privately financed, in several cases with income-tax relief through accelerated amortization, but it is likely that further plant construction will require more direct Government aid. Meanwhile the immediate shortages of slab zinc are being met by partial allocation of the supply through the Priorities Division. The domestic supply of zinc concentrates is not adequate to this enlarged smelting capacity, but can be sufficiently supplemented from Canada, Newfoundland, Mexico and South American, though supplies from the last-named source are dependant on bottoms at reasonable rates.

C. K. Leith

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Authority: NND 730022
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WASHINGTON 25, D. C.

June 20, 1944

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REPLY REFER TO:
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MEMORANDUM

TO: WFB Regional Directors and Production Urgency Committees
in Areas where Asbestos Textile Plants are located.

FROM: Fred B. Sinclair, Chief *Sinclair*
Analysis, Reports, and Services Branch
Procurement Policy Division

SUBJECT: Manpower for Asbestos Textile Industry

We have been advised by the Cork, Asbestos & Fibrous Glass Division, WFB, that the production of asbestos textiles has become a critical bottleneck in direct military programs. Until recently, production has been limited by the amount of asbestos spinning fibre available. The limitation at present, however, is manpower. Facilities and fibre are available for the production of from 200 to 300 tons more asbestos textiles than manpower permits.

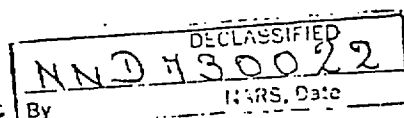
Asbestos textiles are a non-substitutable component in all combat vessels from battleships to Army ducks, as well as in the 2½-ton truck program, the rubber program, the rayon program, and the plane program; in fact they cut across the entire mechanized field, military and industrial. The largest single claimant is the U. S. Navy. In the face of this production decline, the Navy has entered requirements for a 20% increase in roving for Navy cable, and an additional 100,000 yards of asbestos cloth. Planned expansion of the copper wire program will be measured in terms of our ability to produce asbestos roving.

This critical condition in asbestos textiles has been recognized by PEC and cooperation of the Army, Navy, and ARCO has been obtained through regular channels for assistance at local and Area levels in recruiting manpower. Advice has gone out from these respective Services to the field requesting full cooperation. In addition, a Program Determination has been granted to give asbestos textile machinery a green light where such additional machinery will aid production without increasing manpower.

In spite of the importance of asbestos textiles as a component, the Industry is not a large one. The firms involved and their locations are as follows:

Asbestos Manufacturing Co.
Asbestos Textile Company
Asten-Hill Mfg. Company

Huntington, Indiana
North Brookfield, Mass.
Scott's Lunc, Philadelphia, Pa.



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Asbestos Textiles - Labor - Problems

J. Franklin Burke & Co., Inc.
Carolina Asbestos Co.
Ferrodo & Asbestos Co.
Fibre & Metal Products Co.
The Garlock Packing Co.
General Asbestos & Rubber Div.
Raybestos-Manhattan, Inc.

Greene, Tweed & Co.
Johns-Manville Corporation
Keasbey & Mattison Co.
Philadelphia Asbestos Co..
Rockbestos Products Corp.
Southern Asbestos Company
Union Asbestos & Rubber Co.
U. S. Asbestos Division
Raybestos-Manhattan, Inc..
U. S. Rubber Company

Northfield, Vermont-
Davidson, North Carolina
P. O. Box 111, New Brunswick, N. J.
206 Downey Ave., Downey, Cal.
402 Main St., Palmyra, N. Y.
North Charleston, South Carolina

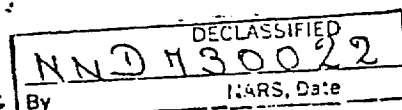
North Wales, Pennsylvania
Lanville, New Jersey
Ambler, Pennsylvania
2010 N. 10th St., Philadelphia, Pa.
New Haven, Connecticut
Charlotte, North Carolina
Cicero, Illinois
Manheim, Pennsylvania

Hogansville, Georgia

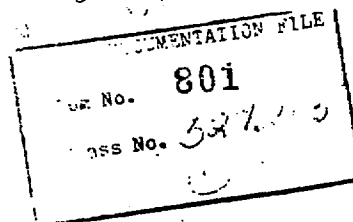
The Industry Division has requested that we make these facts known to the Production Urgency Committees so their cooperation may be secured in obtaining the necessary manpower through priority ratings for labor which will reflect the importance of the asbestos textile program.

We shall be glad to furnish any additional information regarding this matter.

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February 18, 1943

MEMORANDUM

TO: Mr. Irving Swardlow,
Acting Chief, Public Welfare & Facilities Division

FROM: C. Henri Rush, Chief,
Building Materials Section

SUBJECT: Meeting of Asbestos Industry Advisory Committee, February 16, 1943 in the Social Security Building

The object of the meeting was that of hearing a report by the Metals Reserve Company - a government agency charged with buying various types and amounts of asbestos products for the country - on its recent mission to England.

Instead of leaving the purchase and importation of asbestos, which is largely a foreign product, to private concerns, the government has adopted the policy of buying and importing from England asbestos fiber mined in South Africa and needed by the USA, and selling it to the domestic processors as and when required by them.

The contracts entered into by the USA and Great Britain provide for the shipment by England of certain amounts of specific types of asbestos fiber needed in this country after approval of samples submitted to our processors by England. Base prices demanded by England at present are practically the same as those of last year. The U.S. Government notifies the asbestos processors of current shipments and upon their arrival sells the amounts demanded by processors at or below cost, that is, after merely adding to the base price the freight plus overhead charges, war risk insurance and handling costs. The OPA determines the final sale price for both the raw and the finished products. Quantities contracted for in excess of current and future requirements are intended to offset expected sinking losses, and/or to provide for a future stockpile. In case the goods happen to be damaged in transit, the government is to be informed by the recipient companies. The contract contains a provision for future adjustments as to prices and additional quantities that may be desired.

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Approved: NAD 730000

The procedure adopted in the distribution of imported asbestos fibers is the following. The government informs the Cork-Asbestos Division of shipments under way. The latter agency in turn notifies immediately the various companies interested of the same fact so that the latter will be able to place their demand for specific types and quantities desired at the time the goods arrive, and receive them without delay. Surplus stocks are to be stored in available warehouses, that is, either in those of the asbestos processors themselves or of other companies. Asbestos is not yet allocated, but the Government will offer processors as much as is available.

Payments for asbestos fibers sold to processors are to be made to the Government through the Commercial National Bank by means of sight drafts.

The Industry representatives were unanimous in their appreciation of the new method devised by the Government of securing and distributing the country's asbestos requirements.

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\$0.59 akum, \$0.85; Young, \$0.63; Zapata, \$0.83; and Zavala, \$0.80.

Wisconsin: Adams, \$0.88; Ashland, \$1.09; Barron, \$1.29; Bayfield, \$1.19; Brown, \$1.32; Buffalo, \$1.33; Burnett, \$1.09; Calumet, \$1.42; Chippewa, \$1.22; Clark, \$1.25; Columbia, \$1.27; Crawford, \$1.33; Dane, \$1.37; Dodge, \$1.50; Door, \$1.13; Douglas, \$1.22; Dunn, \$1.25; Eau Claire, \$1.26; Florence, \$1.03; Fond Du Lac, \$1.42; Forest, \$1.13; Grant, \$1.41; Green, \$1.40; Green Lake, \$1.32; Iowa, \$1.36; Iron, \$1.13; Jackson, \$1.21; Jefferson, \$1.46; Juneau, \$1.13; Kenosha, \$1.41; Kewaunee, \$1.25; La Crosse, \$1.30; Lafayette, \$1.36; Langlade, \$1.20; Lincoln, \$1.14; Manitowoc, \$1.43; Marathon, \$1.18; Marinette, \$1.08; Marquette, \$1.04; Milwaukee, \$1.46; Monroe, \$1.31; Oconto, \$1.14; Oneida, \$1.05; Outagamie, \$1.35; Ozaukee, \$1.45; Pepin, \$1.30; Pierce, \$1.32; Polk, \$1.23; Portage, \$1.03; Price, \$1.14; Racine, \$1.48; Richland, \$1.33; Rock, \$1.36; Rusk, \$1.24; St. Croix, \$1.30; Sauk, \$1.26; Sawyer, \$1.11; Shawano, \$1.25; Sheboygan, \$1.44; Taylor, \$1.23; Trempealeau, \$1.27; Vernon, \$1.33; Vilas, \$1.04; Walworth, \$1.40; Washburn, \$1.09; Washington, \$1.47; Waukesha, \$1.43; Waupaca, \$1.29; Waushara, \$1.02; Winnebago, \$1.38; and Wood, \$1.15.

Wyoming: Campbell, \$0.61; Converse, \$0.61; Crook, \$0.77; Goshen, \$0.74; Johnson, \$0.86; Laramie, \$0.56; Niobara, \$0.55; Platte, \$0.73; Sheridan, \$0.93; and Weston, \$0.79.

Done at Washington, D. C., this 23th day of August, 1941. Witness my hand and the seal of the Department of Agriculture.

[SEAL] CLAUDE R. WICKARD,
Secretary of Agriculture.

[F. R. Doc. 41-6514; Filed, August 29, 1941; 11:18 a. m.]

TITLE 32—NATIONAL DEFENSE

CHAPTER VI—SELECTIVE SERVICE SYSTEM

[Amendment No. 105]

AN AMENDMENT TO AUTHORIZE STATE MEDICAL OFFICERS TO CONDUCT PHYSICAL EXAMINATIONS IN EMERGENCIES

By virtue of the Selective Training and Service Act of 1940 (54 Stat. 885) and the authority vested in me by the rules and regulations prescribed by the President thereunder, I hereby amend, effective fifteen (15) days after the filing hereof with the Division of the Federal Register, the Selective Service Regulations, Volume One, Section IV, by striking out the present Paragraph 123 and substituting therefor the following:

123. *State medical officers.* a. In each State, one or more medical officers of the Army, Navy, National Guard, Naval Reserves, or Organized Reserves shall be assigned by the President, upon recommendation of the Governor. Medical

officers shall report to the Governor for duty at State Headquarters.

b. In emergencies, State medical officers may either assist examining physicians in conducting physical examinations of registrants or may themselves perform such examinations in place of the examining physicians; in the latter event, the State medical officers shall sign the Reports of Physical Examination (Form 200).

LEWIS B. HERSHEY,
Director.

AUGUST 26, 1941.

[F. R. Doc. 41-6491; Filed, August 28, 1941; 4:17 p. m.]

[No. 27]

ORDER PRESCRIBING FORMS

By virtue of the Selective Training and Service Act of 1940 (54 Stat. 885) and the authority vested in me by the rules and regulations prescribed by the President thereunder, and more particularly the provisions of Paragraph 163 and Appendix A to Volume One of the Selective Service Regulations, I hereby prescribe the following changes in DSS forms:

Revision of DSS Form 21, entitled "Oath of Office," by combining it with and eliminating DSS Form 257, entitled "Waiver of Pay," effective fifteen (15) days after the filing hereof with the Division of the Federal Register. The supply of original DSS Form 21 and DSS Form 257 on hand will be used until exhausted.

The foregoing revision shall, effective fifteen (15) days after the filing hereof with the Division of the Federal Register, become a part of Appendix A to Volume One, Selective Service Regulations.

LEWIS B. HERSHEY,
Director.

AUGUST 27, 1941.

[F. R. Doc. 41-6492; Filed, August 28, 1941; 4:17 p. m.]

CHAPTER IX—OFFICE OF PRODUCTION MANAGEMENT

SUBCHAPTER B—PRIORITIES DIVISION

[Priorities Regulation No. 1]

PART 944—REGULATIONS APPLICABLE TO THE OPERATION OF THE PRIORITIES SYSTEM

Establishing Provisions and Definitions Applicable to the Operation of the Priorities System

The following Regulation is issued by the Director of Priorities to promote the defense of the United States and for the purpose of improving and facilitating the operation of the Priorities System.

§ 944.1 *Definitions.* (a) "Person" means any individual, partnership, association, corporation or other form of enterprise.

(b) "Defense Order" means:

(1) Any contract or order for material or equipment to be delivered to, or for the account of:

(i) The Army or Navy of the United States, the United States Maritime Commission, the Panama Canal, the Coast and Geodetic Survey, the Coast Guard, the Civil Aeronautics Authority, the National Advisory Commission for Aeronautics, the Office of Scientific Research and Development;

(ii) The government of any of the following countries: The United Kingdom, Canada and other Dominions, Crown Colonies and Protectorates of the British Empire, Belgium, China, Greece, The Kingdom of the Netherlands, Norway, Poland, Russia and Yugoslavia.

(2) Any contract or order placed by any agency of the United States Government for material or equipment to be delivered to, or for the account of, the government of any country listed above, or any other country, including those in the Western Hemisphere, pursuant to the Act of March 11, 1941, entitled "An Act to Promote the Defense of the United States," (Lend-Lease Act).

(3) Any other contract or order to which the Director of Priorities assigns a preference rating of A-10 or higher.

(4) Any contract or order for material or equipment required by the Person placing the same to fulfill his contracts or orders on hand, provided such material or equipment is to be physically incorporated in material or equipment to be delivered under contracts or orders included under (1), (2) or (3) above.

(c) "Material" means any commodity, equipment, accessories, parts, assemblies or products of any kind.*

* §§ 944.1 to 944.21, inclusive, issued under the authority contained in O.P.M. Regulation 3, March 7, 1941, 6 F.R. 1696; E.O. 8620, January 7, 1941, 6 F.R. 191; sec. 2 (a), Public No. 671, 76th Congress, Third Session, as amended by Public No. 89, 77th Congress, First Session; sec. 9, Public No. 763, 76th Congress, Third Session.

§ 944.2 *Acceptance of defense orders.* Defense Orders for any Material, whether or not accompanied by a Preference Rating Certificate, must be accepted and fulfilled in preference to any other contracts or purchase orders for such Material, subject to the following provisions:

(a) Defense Orders must be accepted even if acceptance will render impossible, or result in deferment of:

(1) Deliveries under non-defense orders previously accepted, or

(2) Deliveries under Defense Orders previously accepted bearing lower preference ratings, unless rejection is specifically permitted by the Director of Priorities;

(b) Defense Orders need not be accepted:

(1) Delivery on schedule thereunder would be impossible by reason of the requirements of Defense Orders previ-

Priorities;

(2) If the Person seeking to place the Defense Order is unwilling or unable to meet regularly established prices and terms of sale or payment, but there shall be no discrimination against Defense Orders in establishing such prices or terms;

(3) If the Material ordered is not of the kind usually produced or capable of being produced by the Person to whom the Defense Order is offered;

(4) If such Defense Orders specify deliveries within fifteen days, and if compliance with such delivery dates would require the termination before completion of a specific production schedule already commenced.*

§ 944.3 *Rejected orders.* When a Defense Order for any Material has been rejected in violation of this Regulation, the Person seeking to place such Order may file with the Division of Priorities a verified report in form to be prescribed, setting forth the facts in connection with the alleged rejection. When the facts set forth justify such action, the Director of Priorities will thereupon direct the Person against whom complaint is made to submit a sworn statement setting forth the circumstances concerning the alleged rejection. Thereafter, such action will be taken by the Director of Priorities as he deems appropriate.*

§ 944.4 *Assignment of preference ratings.* Preference ratings may be assigned to contracts, purchase orders or deliveries by means of Preference Rating Certificates issued by authority of the Director of Priorities, or by regulations or Orders issued by the Director of Priorities assigning ratings to particular deliveries or to specified classes of deliveries. Such ratings may be assigned to deliveries under accepted contracts or purchase orders, and also, in the case of Defense Orders, to purchase orders which have not been placed or accepted at the time the rating is applied for. The Director of Priorities may also issue specific directions as to particular deliveries, without assigning ratings thereto.*

§ 944.5 *Sequence of preference ratings.* Preference Ratings, in order of precedence, are: AA, A-1-a, A-1-b, etc., . . . A-1-j; A-2, A-3, etc., . . . A-10; BB, B-1, B-2, etc., . . . B-8, AA being the highest rating presently assigned.*

§ 944.6 *Doubtful cases.* Whenever there is doubt as to the preference rating applicable to any delivery, or as to whether a particular order is a Defense Order, the matter is to be referred to the Division of Priorities for determination, with a statement of all pertinent facts.*

§ 944.7 *Sequence of deliveries.* (a) Every delivery under a Defense Order shall be made in preference to deliveries under all other contracts or orders whenever, and to the extent, necessary to fulfill the delivery schedule provided in the

Defense Order if no Certificate has been issued. Deliveries bearing no preference rating or lower preference ratings shall be deferred to the extent necessary to assure those deliveries bearing higher preference ratings, even though such deferment may cause defaults under other contracts or purchase orders. Each Person who has Defense Orders on hand must so schedule his production and deliveries that deliveries under Defense Orders will be made on the dates required, giving precedence, in case of unavoidable delay, to deliveries bearing the higher preference ratings.

(b) The sequence of deliveries bearing the same preference rating shall be determined by the delivery dates specified in their respective Preference Rating Certificates, or if the ratings were assigned by Order or direction of the Director of Priorities, but no Certificates were issued, then by the dates specified in the contracts or purchase orders. In any case where both preference ratings and delivery dates are the same, and it is impossible to make all deliveries on schedule, the matter is to be referred to the Division of Priorities for instructions as to sequence.*

§ 944.8 *Delivery schedules.* No earlier delivery date shall be specified in any Defense Order than required by the production or delivery schedules of the Person placing the Defense Order. No preference rating will be assigned to any contract or purchase order specifying delivery dates earlier than required by the production or delivery schedules of the Person placing the contract or purchase order.*

§ 944.9 *Deferred deliveries.* When deliveries under Defense Orders have been unreasonably or improperly deferred, the Person entitled to delivery may file with the Division of Priorities a verified report in form to be prescribed, setting forth the facts in connection with the alleged deferment. When the facts set forth justify such action, the Director of Priorities will thereupon direct the Person against whom complaint is made to submit a sworn statement, setting forth the circumstances concerning the alleged deferment of deliveries. Thereafter, such action will be taken by the Director of Priorities as he deems appropriate.*

§ 944.10 *Allocations.* When specific allocations of a Material are made by the Director of Priorities, such allocations may, in the discretion of the Director, be made without regard to any preference ratings which have been assigned to deliveries under particular contracts or purchase orders.*

§ 944.11 *Use of material obtained under allocation or preference rating.* Any Person who obtains a delivery of any Material under an Order or specific direction of the Director of Priorities, or a delivery of Material bearing a preference rating, must use such Material, or an equivalent amount thereof, for the

rating.*

§ 944.12 *Intra-company deliveries.* When any Order of the Director of Priorities prohibits or restricts deliveries of any Material by any Person, such prohibition or restriction shall, in the absence of a contrary direction, apply not only to deliveries to other Persons, including affiliates and subsidiaries, but also to deliveries from one branch, division or section of a single enterprise to another branch, division or section of the same or any other enterprise owned or controlled by the same Person.*

§ 944.13 *Effect of order; damages.* When any Order of the Director of Priorities prohibits or restricts deliveries of any Material, such prohibition or restriction shall, in the absence of a contrary direction, apply to all deliveries made after the effective date of the Order, including deliveries under contracts or purchase orders accepted either prior or subsequent to the effective date of the Order. No Person shall be held liable for damages or penalties for any default under any contract or purchase order which shall result directly or indirectly from his compliance with any rule, regulation or Order issued by the Director of Priorities.*

§ 944.14 *Inventory restriction.* Unless specifically authorized by the Director of Priorities, no Person shall, after the effective date of this Regulation, knowingly make delivery of any Material whatever, and no Person shall accept delivery thereof, in an amount, quantity or number which will increase for any current month the inventory of such Material of the Person accepting delivery, in the same or other forms, in excess of the amount, quantity or number necessary to meet required deliveries of the products of the Person accepting delivery, on the basis of his current method and rate of operation. This provision shall not prohibit or restrict:

(a) Deliveries for direct export out of the United States, provided that such exports shall have been licensed by the Administrator of Export Control;

(b) Deliveries of imported Material to any Person importing the same, either directly or through an agent.*

§ 944.15 *Records.* All Persons affected by any Order of the Director of Priorities shall keep and preserve for a period of not less than two years accurate and complete records of their inventories of the Material covered by such Order, and of the details of all transactions in the Material covered by such Order. Such records shall include the dates of all contracts or purchase orders accepted, the delivery dates specified in such contracts or purchase orders, and in any Preference Rating Certificates accompanying them, the dates of actual deliveries thereunder, description of the Material covered by such contracts or purchase orders, description of deliveries

by classes, types, quantities, weights and values, the parties involved in each transaction, the preference ratings, if any, assigned to deliveries under such contracts or purchase orders, details of all Defense Orders either accepted or offered and rejected, and other pertinent information.*

§ 944.16 *Audit and inspection.* All records required to be kept by this Regulation or by any Order of the Director of Priorities shall, upon request, be submitted to audit and inspection by duly authorized representatives of the Office of Production Management.*

§ 944.17 *Reports.* All Persons affected by any Order of the Director of Priorities shall execute and file with the Office of Production Management such reports and questionnaires as said Office shall from time to time request. No reports or questionnaires are to be filed by any Person until forms therefor are prescribed by the Office of Production Management.*

§ 944.18 *False statements.* Any Person who wilfully falsifies any records which he is required to keep by the Director of Priorities, or who otherwise wilfully furnishes false information to the Director of Priorities or to the Office of Production Management, and any Person who obtains a delivery, an allocation of Material or a preference rating by means of a material and wilful misstatement, may be prohibited by the Director of Priorities from making or obtaining further deliveries of Material under allocation and may be deprived of further priorities assistance. The Director of Priorities may also take any other action deemed appropriate, including the making of a recommendation for prosecution under section 35A of the Criminal Code (18 U. S. C. 80).*

§ 944.19 *Appeal.* Any Person affected by any Regulation or Order of the Director of Priorities who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, may appeal to the Division of Priorities by addressing a letter to the Division of Priorities, Office of Production Management, Social Security Building, Washington, D. C., setting forth the pertinent facts and the reasons such Person considers that he is entitled to relief. The Director of Priorities may thereupon take such action as he deems appropriate.*

§ 944.20 *Notification of customers.* Any Person who is prohibited from, or restricted in, making deliveries of any Material by the provisions of any Order of the Director of Priorities shall, as soon as practicable, notify each of his regular customers of the requirements of such Order, but the failure to give such notice shall not excuse any customer from the obligation of complying with the terms of such Order.*

§ 944.21 *Effect of regulation; ratification of prior acts.* This regulation shall take effect at once, and shall here-

after regulate and govern all matters embraced herein, except where inconsistent with the specific provisions of any existing or future Order or direction of the Director of Priorities. All existing Orders, directions and actions of the Director of Priorities are hereby ratified and confirmed and shall remain in full force and effect until they expire by their terms or are specifically revoked or amended.*

Issued August 27th, 1941, effective immediately.

E. R. STETTINIUS, Jr.,
Director of Priorities.

Approved:

WILLIAM S. KNUDSEN,
Director General.

SIDNEY HILLMAN,
Associate Director General.

[F. R. Doc. 41-6490; Filed, August 28, 1941;
1:40 p. m.]

CHAPTER XI—OFFICE OF PRICE ADMINISTRATION AND CIVILIAN SUPPLY

PART 1337—RAYON*

AMENDMENT OF CIVILIAN ALLOCATION PROGRAM FOR RAYON YARN

It is hereby directed that the amendment to § 1337.1 which was issued August 15, 1941, be amended by deleting the expiration date "August 31, 1941", and substituting in lieu thereof the expiration date "September 30, 1941."

It is further directed that the amendment to § 1337.1 which was issued August 19, 1941, be amended by deleting the expiration date "August 31, 1941", and substituting in lieu thereof the expiration date "September 30, 1941", and it is further directed that such amendment be amended by deleting the figure "95%" and substituting in lieu thereof the figure "100%."

Section 1337.1, as amended, is also hereby further amended by adding at the end thereof the following:

§ 1337.1 *Allocation of materials.*
* * * *Provided further,* That the rayon yarn expressly required by this program to be made available to hosiery manufacturers and to other former users of silk shall be used only to replace silk, and the amount thereof shall therefore be computed apart from the quantities of rayon yarn which will, in the reduced amounts available by reason of this program, be supplied to persons who prior to August 1, 1941 were purchasers of rayon yarn, and *Provided also,* That nothing herein contained shall be taken to be any representation on the part of the Government as to the suitability of any process of manufacture of rayon yarn for the manufacture of hosiery or other products formerly made largely or

wholly from silk, nor shall anything herein contained be construed to prevent any producer of rayon yarn from selling yarn not covered by this section to any manufacturer.

Section 1337.2 is hereby amended by adding at the end thereof the following:

§ 1337.2 *Disposal of yarn allocated but not purchased.* * * * *Provided, however,* That if on the last day of August any of the amounts of rayon yarn required to be set aside during the month of August have not been purchased by persons permitted to make purchases under Section 1337.1, such yarn shall not be disposed of by the producer thereof but shall continue to be held by the producer thereof for disposition in accordance with the terms of this program.

Issued this 28th day of August 1941.

LEON HENDERSON,
Administrator.

[F. R. Doc. 41-6512; Filed, August 29, 1941;
11:15 a. m.]

[Schedule No. 25]

PART 1343—FATS AND OILS AND THEIR PRODUCTS

ELIMINATION OF SPECULATIVE AND INFLATIONARY PRICE PRACTICES WITH REFERENCE TO FATS AND OILS AND THEIR PRODUCTS

The Office of Price Administration and Civilian Supply is charged with the maintenance of price stability and civilian supply. Present stocks and production of fats and oils and their products are ample. However, during the past few months, speculation in and hoarding of fats and oils and their products has created the impression of a shortage and has imposed an artificial influence upon prices detrimental to the public interest and national defense. The exhaustive investigation by this Office, and the information and counsel furnished this Office by the trade, have established the necessity for, and the willingness of the trade to cooperate in, the elimination of certain of these speculative and inflationary price practices.

Therefore, under the authority vested in me by Executive Order No. 8734, it is hereby directed that:

§ 1343.1 *Elimination of speculative resales.* No person shall buy or offer to buy, and no person shall sell or offer to sell, fats or oils or their products for the purpose of reselling them at a profit without either (a) further processing them or (b) performing some other recognized function in the distribution or manufacture thereof.

Any purchase or sale of a futures contract made on an organized commodity exchange to hedge a position, or any purchase or sale made to fill an order on hand, to avoid transportation expenses, or to facilitate any other recognized

* 6 F.R. 3922, 4145, 4214.

* 6 F.R. 1917.

December 4, 1942

Requirement	
CROSS REF.	
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MEMORANDUM

Requirements

To: Assistant Chief in Charge of Planning and Statistics
Office of Procurement and Material, Navy Department

From: Stacy May, Director
Statistics Division

Subject: Asbestos Requirements of Bureau of Ships and Bureau of
Yards and Docks

The Cork and Asbestos Division of the WPA has requested this office to obtain the most recent estimates of the Bureau of Ships and the Bureau of Yards and Docks for asbestos in terms of the gross weight of asbestos products rather than the net weight of the asbestos contained in these products as heretofore reported. The necessity for reporting gross instead of net weight arises from the fact that bottlenecks exist in the facilities for fabricating certain asbestos products, such as amosite insulating blocks, quite apart from the scarcity or abundance of the raw asbestos contained in these products.

The asbestos products to be covered should be the same as those shown on previous asbestos reports and include the following items:

Products using Chrysotile - Bureau of Ships:

85% Magnesia Pipe Covering
85% Magnesia Cement
85% Magnesia Blocks
High Temp. Asb. Pipe Covering
High Temp. Asb. Cement
Heavy Asbestos
Marine Sheathing
Asbestos Millboard
Electric Cable Filler
Asbestos Cloth - 80% Asb.
Asbestos Fire Fighting Suits
Asbestos Rope, Twine, Yarn, etc.
Asbestos Kitchens
High Temp. Asb. Segmental Blocks
Packings
Asbestos Molded Blocks
Corrugated Asbestos
Carpeted Asbestos Tape
Miscellaneous

Dec. 4, 1942
November 25, 1942

Products using Amosite - Bureau of Ships:

Pipe Covering
Woven Asbestos Felt
High Temp. Asb. Magnesia Blocks
Asbestos Molding Blocks
Corrugated Asbestos
Corrugated Asbestos Tape

Bureau of Lards and Becks:

Corrugated Sheets
Asbestos Shingles
Asb. Insulating Board
SGS Magnesia Pipe Covering
SGS Magnesia Blocks
Amosite Asb. Pipe Covering
Amosite Asb. Blocks
Woven Asbestos Felt
High Temp. Asb. Pipe Cov. (SuperX)
High Temp. Asb. Turbine Covering (Block or Loose)
Heavy Asbestos
Asbestos Tape
Brake Linings
Gaskets

The period to be covered by the report is the calendar year 1943, by quarters.

Since a major portion of the requested information should be readily available in the work sheets used by the Bureau in preparing recent estimates of requirements for contained asbestos, it is expected that you will be able to supply us with the needed data by December 10, 1942. Your prompt cooperation will be appreciated.

15/ Stacy May
Stacy May BF

KUSHerman, Jr: fal

~~Confidential~~

NAVY DEPARTMENT
OFFICE OF PROCUREMENT AND MATERIAL

EX-100
51-51-21-6

CURRENT STATUS
OF
CRITICAL MATERIALS

VOLUME No. 4 ✓
1 OCTOBER 1944

DECLASSIFIED
Authority DOD DIRECTIVE 5200.3 3/21/83
BY L. JONES, NARA, Date 8/9/05

EXHIBIT NUMBER 101

~~CONFIDENTIAL~~

FOREWORD

This report presents the supply demand relationship of most of the materials important to Navy production programs and includes all those materials which were incorporated in Volume No. 2, dated 1 April 1944, in addition to those which have been discussed in supplements issued since. Certain materials are not regarded sufficiently critical to warrant a detailed statement and are simply listed for reference. It will be noted that since the publication of Volume No. 2, the list of materials no longer regarded as critical has expanded considerably. The general easing of most materials appears likely to continue and, when the termination of the European war results in substantial cutbacks in military programs, the supply of most materials should be adequate for military programs necessary to prosecute the war in the Pacific. It must be emphasized that certain strategic and critical materials (mostly imported, such as tin, mica, manila fiber, steel, and natural crude rubber) will remain critical after the defeat of Germany. Certain chemicals and textiles will also remain in this category.

Manpower is still regarded as the most difficult factor influencing the production of raw materials, components and end products. When Germany is defeated, however, the labor situation may be alleviated.

It will be noted that principal Navy uses have been summarized at the beginning of the report on each material with a few exceptions where the uses are obvious. This practice is intended primarily to assist Navy field manpower representatives in relating materials to end items of munitions.

Attention is again invited to the necessity of obtaining recommendations concerning increased uses of critical materials from the cognizant Divisions of this Office, the Materials Division, PM 230, and the Conservation Division, PM 232, before commitments are made.

It is planned to issue frequent supplements to this report, as changes occur in material situations.

S. M. ROSSMAN

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7

ACETYLENE BLACK

Uses

Military Dry Batteries (Including dry cell batteries for Navy Communication and Ordnance Programs)
R. R. Lantern Batteries
Rubber Compounding

Acetylene black is produced by only one company which is located in Canada. Several attempts have been made by companies in the United States to produce an acceptable grade of this material but none have been commercially successful. A pilot plant is now being built that seems promising. During the first quarter of 1945 the capacity of the Canadian plant will be increased sufficiently to allow the importation of acetylene black in excess of essential requirements. The Army and Navy have requested that a stockpile equivalent to a six months demand be established for security reasons. At the end of August the stock pile totaled 2,885,000 pounds including 1,885,000 pounds held by Defense Supplies Corporation.

	1st Qtr. 1944	2d Qtr. 1944	3d Qtr. Est. 1944	4th Qtr. Est. 1944	Total Est. 1944	1st Qtr. Est. 1945	2d Qtr. Est. 1945
New Supply—Total	2,371	1,900	1,900	1,900	2,000	2,000	2,000
Imports	2,371	1,900	1,900	1,900	2,000	2,000	2,000
Demand—Total	1,348	1,087	*2,075	2,155	7,005	2,157	2,155
Indirect Military (Batteries)	1,170	1,000	1,000	1,075	6,537	1,075	1,075
Indirect Military (Rubber Compounding)							
	178	187	875	280	900	900	900

*Actual

ALCOHOL, NORMAL BUTYL

Uses

Butyl Acetate
Dibutyl Phthalate (smokeless powder)
Butyl Cellulosic
Lacquer Solvents

Insect Repellents
Hydraulic Fluid
Oil Additives

New facilities for the production of butyric acid from ethyl alcohol to be completed by the first quarter of 1945 will decrease requirements for normal butyl alcohol by 2,800,000 lbs. per quarter. It is estimated that this will bring supply and requirements into balance. Butyl alcohol is under allocation. On 1 October 1944 inventories equalled 1,500,000 pounds.

	3d Qtr. Est. 1944	4th Qtr. Est. 1944	1st Qtr. Est. 1945	2d Qtr. Est. 1945
New Supply—Total	82,000	80,700	80,700	80,700
Prim. Production	87,300	80,000	80,000	80,000
Second. & Scrap	700	700	700	700
Demand—Total	22,000	41,304	22,000	22,000
Direct Military	2	2	2	2
Indirect Military & Essential Civilian	22,700	22,000	24,000	24,000
Export	5,304	5,304	5,004	5,004

ALCOHOL, ETHYL

Uses

Explosives, solvents, antifreeze, ordnance (torpedoes), synthetic rubber

All military and essential civilian requirements are being met in full under present controls. The overall supply and demand is uncertain due to present requirements for butylenes for aviation gasoline. Butylenes are used in production of butadiene. At present ethyl alcohol is carrying the full load of butadiene production for synthetic rubber. If butylenes are returned to butadiene production the demand for ethyl alcohol will ease considerably.

ALCOHOLS, COCONUT OIL (NORMAL OCTYL, NORMAL DECYL, LAUREL, CETYL, STEARYL)

Uses

Manufacture of hydraulic fluid, foaming agents for fire fighting, Navy antiseptics, oil additives, synthetic rubber modifiers

These materials continue to be in short supply because of large requirements for rubber modifiers. One-half of the production of these alcohols is obtained through the sodium reduction process, requiring the use of metallic sodium. At present, due to the shortage of sodium, very little is being allowed for the manufacture of these fatty alcohols. All military requirements and most essential civilian requirements are being met under present controls.

~~CONFIDENTIAL~~**ANTIMALARIALS****Uses****Quinine, Tetaquine, and Quinacrine Hydrochloride (atabrine)**

The government stockpile of quinine and quinine salts as of 1 September 1944 was 5,229,229 ounces, an increase of 445,712 ounces over the actual stockpile of 4,883,546 ounces as of 1 January 1944. 529,683 ounces of quinine and quinine salts, which has been added to the stockpile from 1 January to 1 September 1944, is material that has been realized from processed cinchona bark. 164,275 ounces has been released from the government stockpile during the period of 1 January to 1 September 1944. The military requirements for quinine and quinine salts have been greatly reduced in favor of increased use of quinacrine hydrochloride (atabrine). Consequently, the Foreign Economic Administration has made drastic cut-backs in their South and Central American development and procurement plans. Only cinchona bark containing over 3% total crystallizable alkaloids will be procured as compared to the procurements of all bark in the past. Under the present Foreign Economic Administration plans for the calendar year 1945, it is estimated that approximately 18,000,000 pounds of cinchona bark will be imported. Through an agreement with the United States, Great Britain is to receive approximately 3,000,000 pounds of cinchona bark annually. It is anticipated that about 2,320,000 ounces of quinine will be realized by the United States during the calendar year 1945 from the cinchona bark imported and processed. At the present rate of consumption of quinine by the claimant agencies it is estimated that total requirements of quinine and quinine salts for the calendar year 1945 will be approximately 1,780,000 ounces.

The production of quinacrine hydrochloride (atabrine) is now in excess of requirements. Consequently, it is contemplated that the allocation order controlling the distribution of this synthetic antimalarial will be revoked by 1 January 1945.

All imported cinchona bark containing less than 3% total crystallizable alkaloids is being processed into tetaquine. The demand for this antimalarial, to date, has not been large. It is estimated that the inventory as of 1 January 1945 will be approximately 1,865,000 ounces.

All of these materials are at present under complete allocation.

ASBESTOS AND ASBESTOS TEXTILES**USES (see table below)**

The requirements for the higher types of asbestos textiles (used for lagging over pipe coverings and for Navy cable, etc.) have not been met in full, for the industry has not had the manpower and facilities to provide them. The use of Canadian Crude 1 and 2 and SF through ST, employed for these higher types, has been limited by the industry's capacity to consume, but by means of a combination asbestos and fibrous glass cloth, together with an expansion in productive capacity of the industry which is now in process, it should be possible to meet the most important requirements from now on. The tight supply situation on packing, gaskets, and oil seals, due to insufficient manufacturing facilities continues.

Grade and Source	Asbestos—Critical Grades (Short Tons)		
	Actual Stocks 9/1/44	1944 Supply	1944 Consumption
Chrysotile—Rhodesian			
C & G/1	876	*1,000	1,773
C & G/2	2,404	*4,000	5,100
C & G/3	11,029	*2,446	4,705
Chrysotile—Canadian			
Crude 1 and 2	982	1,911	1,879
SF	200	400	670
SK	805	2,314	2,305
SR	2,702	11,308	12,113
ST	606	1,057	1,700

*Dependent upon shipments in last quarter from South Africa.

C & G 1 & 2
SF
SK
SR
ST

} Rhodesian or Arizona

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1944 Consumption of Asbestos by End Use

- + (a) *Asbestos Compressed Sheet Packing (Canadian SF, ST, and SS)*
Compressed asbestos sheet packing is used by the Navy, the Maritime Commission and for other direct and certain indirect military requirements.
- + (b) *Molded Asbestos Insulation*
Used by the Navy, the Maritime Commission, and for direct and indirect military purposes.
- + (c) *Woven Asbestos Felt Insulation*
Used by the Navy and the Maritime Commission.
- (d) *Fireproof Marine Type Insulating Board (Asbestos)*
Used on fireproof divisional bulkheads on Maritime Commission vessels.
- (e) *Sprayed Asbestos Insulation (Asbestos and C & G/S)*
Used by the Navy and Maritime Commission for ship insulation.
- + (f) *85 percent Magnesia and Other High Temperature Insulations (Asbestos and Canadian SF)*
85 percent of the 85 percent magnesia and other high temperature molded insulations are required in insulation of Naval and Maritime vessels; the remaining 45 percent is used for indirect military and essential civilian purposes for high temperature insulations.
- (g) *Asbestos Cement Pipe (C & G/S, C & G/4, and Blue)*
Used as a substitute for cast iron and steel water pipes. 25 percent will be employed for water supply to military establishments; the balance will go for direct military and essential civilian requirements.
- + (h) *Miscellaneous Uses (Canadian SF)*
- (i) *Asbestos Textiles*
African C & G/1 and C & G/2 are principally confined to Navy cable construction. Canadian Grades and Canadian Grades SF and SK are used only for the higher types of asbestos textiles.

BENZALDEHYDE

Uses

- Protective gas ointment
- Dehousing spray

Benzaldehyde became critical during September 1944 due to large military requirements for protective gas ointment and dehousing spray. It is expected that by March 1945 requirements and supply will be brought into balance through increased production and anticipated decreased requirements.

BENZOL

Uses

- Manufacture of cumene (aviation gasoline)
- Manufacture of styrene (Buna S)
- Manufacture of nylon, phenol, aniline, etc.

Benzol continues to be critical due to large aviation gasoline and synthetic rubber requirements. All essential military and essential civilian requirements are being met under present controls. As of 1 September 1944 Government stocks totalled 23,500,000 gallons. Industrial stocks are negligible.

	1st Qtr. 1944	2nd Qtr. 1944	3rd Qtr. Est. 1944	4th Qtr. Est. 1944	Total Est. 1944	1st Qtr. Est. 1945
New Supply—Total	82,147	82,218	81,819	81,000	344,397	81,000
Prim. Production	80,574	80,500	84,000	80,000	325,074	80,000
Second. & Scrap	18,573	21,810	21,810	18,000	80,193	18,000
Imports	0	2,000	2,000	2,000	12,000	2,000
Allocations—Total	84,617	82,178	88,828	81,000	336,623	81,000
Direct Military	843	1,186	1,186	1,040	3,355	1,200
Indirect Military Essent. Civilian	84,573	87,000	87,000	80,000	338,573	80,219

* Actual.